ORDER NO. VED89040016C2

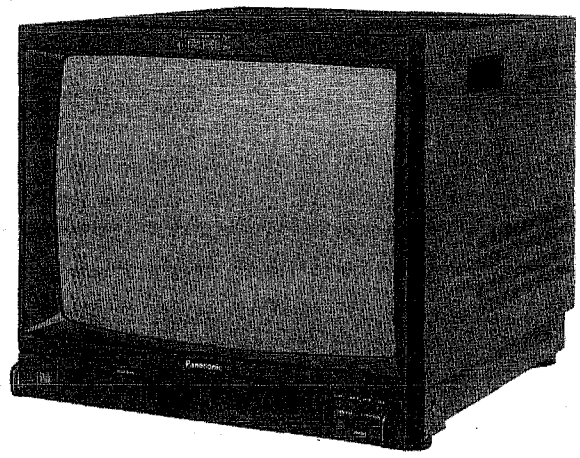
Service Manual

Colour Video Monitor

BT-D2020PY/PYG

H01M5 Chassis

PYG . . . . . U.K. Only



The service technician is required to read and follow the "Safety Precautions" and "Important Safety Notice" in this Service Manual.

SPECIFICATIONS

System: 625 lines per picture, 50 fields per second, interlaced, PAL

CRT: Medium Resolution CRT 0.55 mm Dot pitch, 90-degree deflection, 29.1 mm in line gun

Effective Picture Size: [H×W] 293 x 394 mm ($11\ ^{9}/_{16}$ x $15\ ^{1}/_{2}$ inches) picture measured diagonally

Input and Output

Video: LINE A/B; 1.0Vp-p composite video signal ±2 dB positive, 75Ω, with automatic loop-through output, BNC connector (4)

Sync: EXT.SYNC; 4.0Vp-p $^{+6}_{-26}$ dB negative, with automatic loop-through output, BNC connector (2)

Video Return Loss: More than 40 dB (0~5 MHz with 75Ω termination)

Sync Return Loss: More than 46 dB (0~5 MHz with 75Ω termination)

Component: (RGB & YP_BP_R switchable)

YP_BP_R: Y ; 1.0Vp-p±2dB, 75Ω, with automatic loop-through output, BNC connector (2)

P_B; 0.7Vp-p±2dB, 75Ω, with automatic loop-through output, BNC connector (2)

P_R; 0.7Vp-p±2dB, 75Ω, with automatic loop-through output, BNC connector (2)

RGB: R; 0.7Vp-p±2dB, 75Ω, with automatic loop-through output, BNC connector (2)

G; 0.7Vp-p±2 dB, 75Ω, with automatic loop-through output, BNC connector (2)

B; 0.7Vp-p±2 dB, 75Ω, with automatic loop-through output, BNC connector (2)

S-Video Input: Y signal; 1Vp-p, C signal; 0.30Vp-p 75Ω or HIGH impedance (Manual), MINI DIN 4 PIN type connector (1)

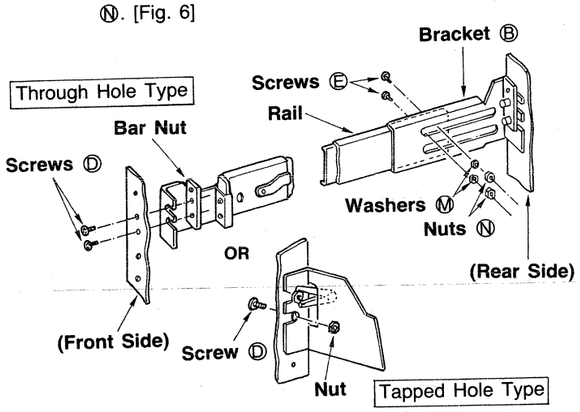
S-Video Output: Y signal; 1Vp-p, C signal; 0.30Vp-p 75Ω or HIGH impedance (Manual), MINI DIN 4 PIN type connector (1)

Tally Remote Connector: REMOTE: 3 terminal type (DC 24.0V±1.0V input or switch) connector (1)

Panasonic

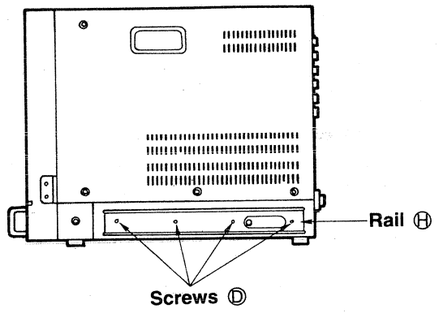
Matsushita Electric Industrial Co., Ltd.
Central P. O. Box 288, Osaka 530-91, Japan

STEP 6. Set the 2 screws Ⓓ and bar nut temporarily, and insert the brackets Ⓑ to the back of the rack. Fix the rail with 2 screws Ⓔ, 2 washers Ⓜ and 2 nuts Ⓝ. [Fig. 6]



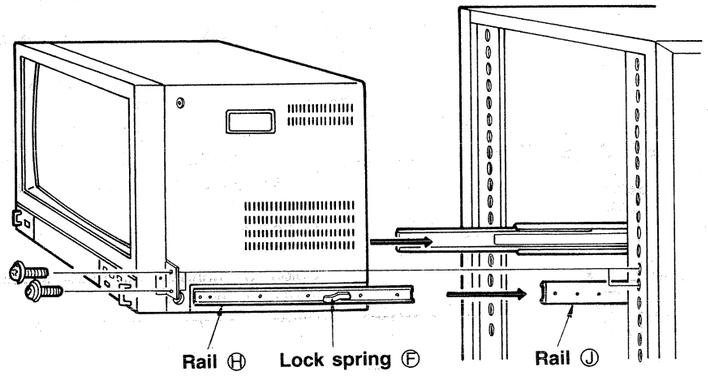
[Fig. 6]

STEP 7. Mount and secure both the right and left rails Ⓗ on the unit using 4 screws Ⓓ each. [Fig. 7]



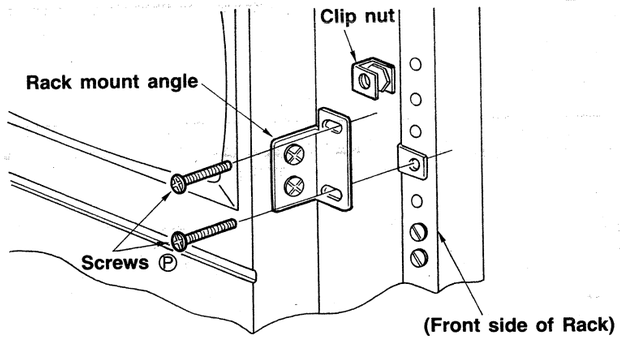
[Fig. 7]

STEP 8. Pull out the both rails Ⓙ until they are locked. While pressing the lock spring Ⓕ of the rails Ⓗ, insert the rail Ⓙ. The rails Ⓗ and Ⓙ are locked, press again the lock spring Ⓕ to store the unit into the rack. [Fig. 8]



[Fig. 8]

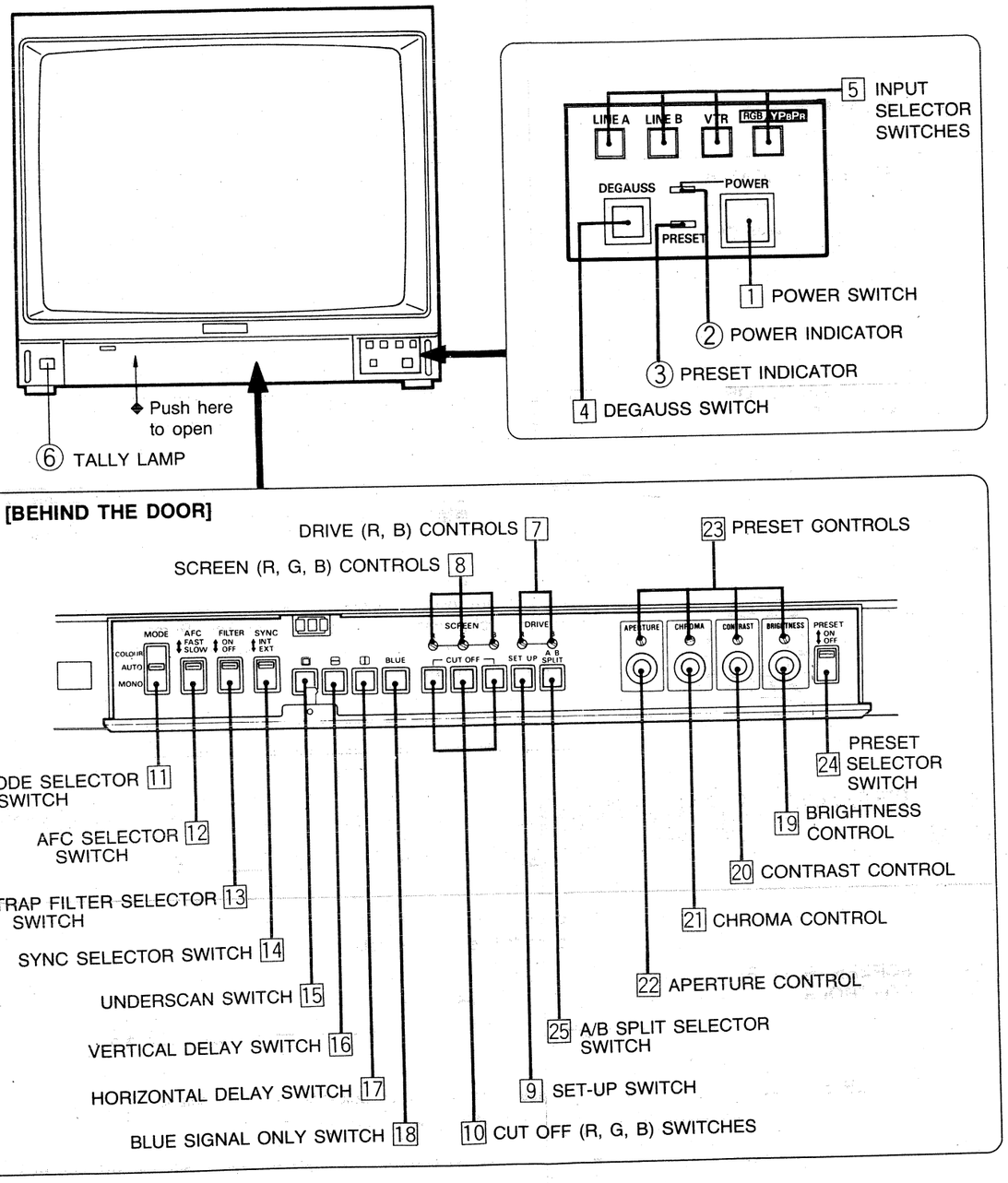
STEP 9. Tighten the both rack mount angles with 2 screws Ⓟ to fix the set to the rack. [Fig. 9]



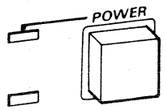
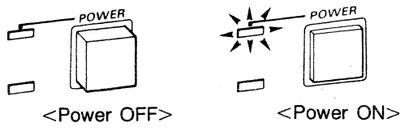
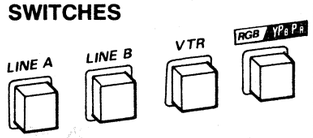
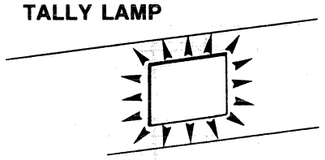
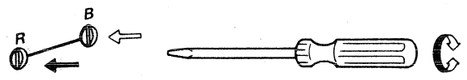
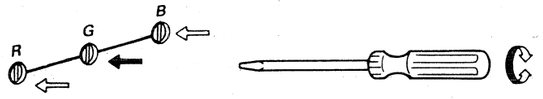
[Fig. 9]

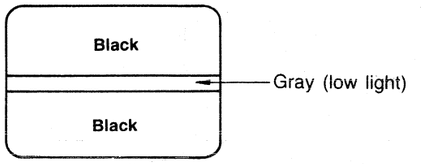
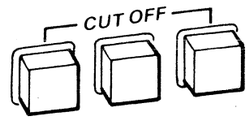
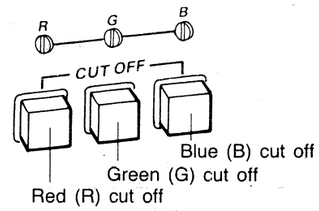
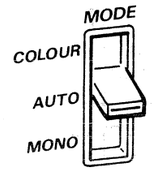
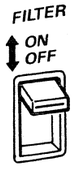
LOCATION AND OPERATIONS

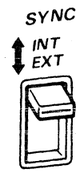
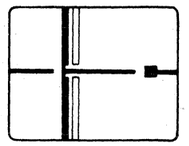
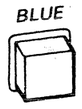
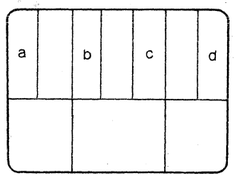
FRONT CONTROLS AND INDICATIONS

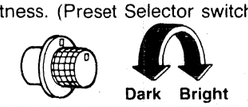
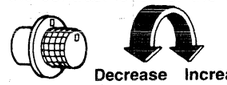
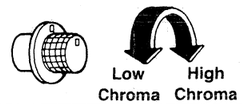
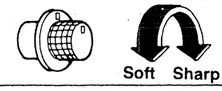
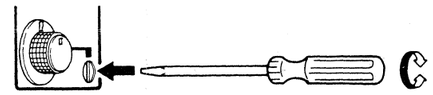
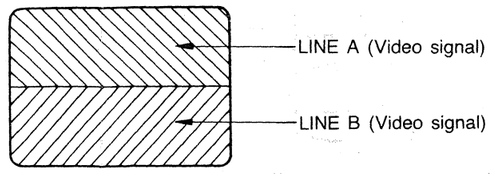


Note: □ ..... Controls and Switches
○ ..... Indicators

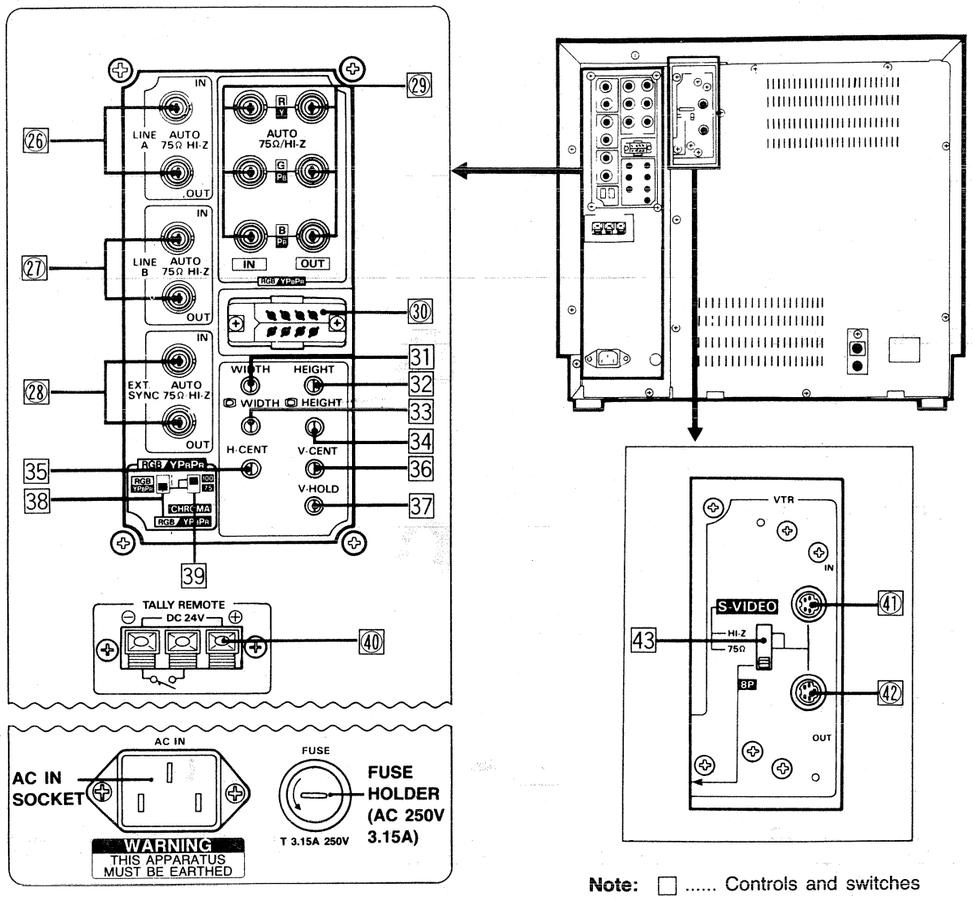
No.	NAME	PURPOSE
1	**POWER SWITCH** 	Push this switch to turn the unit "ON". 
②	**POWER INDICATOR**	● Depress the power switch to turn "ON" the power. ● The power indicator will light (GREEN).
③	**PRESET INDICATOR**	This is the preset "ON"/"OFF" indicator.
4	**DEGAUSS SWITCH** 	To demagnetize the screen, press this switch more than 10 sec. with the power turned on. Wait for 5 minutes or more before activating degaussing again.
5	**INPUT SELECTOR SWITCHES** 	**LINE A** : Received video signal from the LINE A terminal. **LINE B** : Received video signal from the LINE B terminal. **VTR** : Received video signal from the VTR terminal. (8P and S-Video) **RGB/YPBPR** : Received RGB or YP_BP_R signal from the **RGB/YPBPR** (R G B / Y PB PR IN/OUT) terminals 29 . For detail, refer to page 13 and 14.
⑥	**TALLY LAMP** 	● This is used when more than one unit of this type is used, and indicates signal change over to monitor, or, which monitor is to be watched. ● The lamp lights when the terminals of the Tally Remote terminals 40 on the rear panel are short circuited or supplied 24V DC. For detail, refer to page 15.
7	**DRIVE (R, B) CONTROLS**	These controls are used to adjust individual colour gain. Used for bright level white balance. 
8	**SCREEN (R, G, B) CONTROLS**	These controls are used to adjust individual colour screen bias. Used for dark level white balance. 
9	**SET-UP SWITCH** 	● Depress this switch when adjusting the white balance. A horizontal white bar of approximately 1/4~1/5 the screen height is displayed. ● Adjust Brightness control 20 dark enough to see the low light white balance.

No.	NAME	PURPOSE
		● After adjusting the white balance, press this switch again.  **Note:** Do not use this function except when white balance is readjusted.
10	**CUT OFF (R, G, B) SWITCHES** 	The R, G and B switches turn the red, green and blue beams respectively on and off. To turn off the beam, depress the switch. To turn it on, press the switch again.  ● When 2 switches are "ON", it will be a single colour screen of either red/green/blue. ● When 1 switches is "ON", it will be a synthesized colour screen. [red+green=yellow, red+blue=magenta, green+blue=cyan] ● When all 3 switches are "ON", the screen will be black. Usually, leave all of them in the "OFF" position.
11	**MODE SELECTOR SWITCH** 	● **COLOUR:** Used when receiving only colour signals out of input video signals. (Auto colour control and auto colour killer in "OFF" mode.) ● **AUTO** : Normal position. (Auto colour control and auto colour killer in "ON" mode.) Colour or monochrome mode is automatically selected according to the presence or absence of colour burst. ● **MONO** : Chroma channel is deactivated and the picture is displayed in monochrome mode.
12	**AFC SELECTOR SWITCH** 	Selects the AFC time constant. ● **FAST :** This mode is fast enough to correct for VTR jitter. Use the position to obtain a stable playback picture from a VTR. ● **SLOW:** This mode is slow enough to display the time base instability introduced by mechanical jitter, in the VTR playback signal.
13	**TRAP FILTER (ON/OFF) SELECTOR SWITCH** 	● **TRAP FILTER ON :** This is the normal switch position. ● **TRAP FILTER OFF:** This position provides higher resolution than with the trap filter "ON". Use this position with Black/White signal, or monochrome mode on the Mode Selector switch 11 .

No.	NAME	PURPOSE
14	**SYNC (INT/EXT) SELECTOR SWITCH** 	**INT:** The monitor operates on the sync signal from the displayed composite video signal. **EXT:** The monitor operates on an external sync signal supplied from the Ext. Sync terminals [28] on the rear panel.
15	**UNDERSCAN SWITCH** 	Depress this switch for underscanning. The display size is reduced by approximately 5% so that four corners of the raster are visible.
16	**VERTICAL DELAY SWITCH** 	Depress this switch to observe the vertical sync signal. The picture is delayed vertically and the vertical sync signal is displayed near the center of the screen. Picture brightness is automatically increased for easy observation. ● A pulse cross is displayed by depressing both the [16] and [17] switches. 
17	**HORIZONTAL DELAY SWITCH** 	Depress this switch to observe the horizontal sync signal. The picture is delayed horizontal and the horizontal sync signal is displayed in the left size of the screen. Picture brightness is automatically increased for easy observation.
18	**BLUE SIGNAL ONLY SWITCH** 	Depress this switch to observe BLUE signal in Black and White. This makes it easier to adjust chrominance (using colour bar display) and increases visibility of video tape dropouts and playback noise.  (colour bar pattern) **Note:** When Chroma control [21] is turned, and (a)~(d) white level is adjusted to the same, it will be the standard colour.

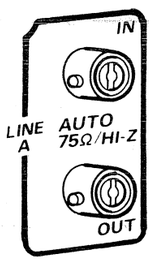
No.	NAME	PURPOSE
19	**BRIGHTNESS CONTROL**	Adjust the brightness level for the desired overall picture or display brightness. (Preset Selector switch [24] to "OFF" position) 
20	**CONTRAST CONTROL**	Adjust the contrast level for the desired overall contrast. (Preset Selector switch [24] to "OFF" position) 
21	**CHROMA CONTROL**	Adjust the chroma control to set the colour staturation level. (Preset Selector switch [24] to "OFF" position) 
22	**APERTURE CONTROL**	● Turn clockwise to get a crisper picture. ● Turn counterclockwise to get a softer picture. (Preset Selector switch [24] to "OFF" position) 
23	**PRESET CONTROLS**	Each preset controls which belong the manual controls are enabled at Preset Selector switch [24] to "ON" position. Preset levels are preadjusted at factory shipment. 
24	**PRESET SELECTOR SWITCH** 	This switch is used to select whether the picture is at a preset level (fixed), or manually setting the level. ● **PRESET "ON"** : Preset level (fixed) ● **PRESET "OFF":** Enable manual controls. **CONTRAST** ; Adjust the picture contrast level. **BRIGHTNESS**; Adjust the picture brightness level. **CHROMA** ; Adjust the colour saturation level. **APERTURE** ; Adjust the picture to a sharper level.
25	**A/B SPLIT SELECTOR SWITCH** 	Video signals on Line A terminals [26] and Line B terminals [27] can be monitored respectively in the upper and lower halves of a picture by setting this switch to "ON". For detail, refer to page 13 and 14.  ① Sync signal of Line A and Line B should be the same. ② Input the Sync signal by Ext. Sync terminals [28] .

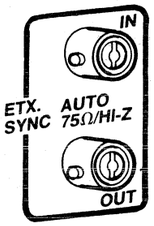
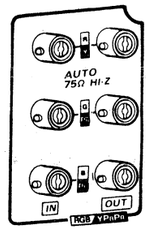
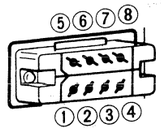
BACK CONTROLS AND TERMINALS



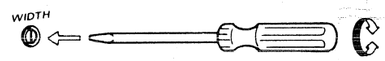
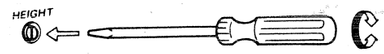
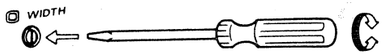
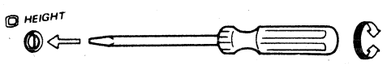
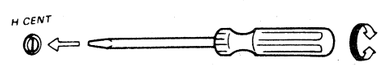
Note: □ ..... Controls and switches

⬡ ..... Terminals

No.	NAME	PURPOSE
26	**LINE A TERMINALS** 	● Video signal input/output terminals (BNC). ● These terminals have automatic termination. When BNC connectors are connected into IN and OUT terminals. 75Ω termination will be automatically opened.
27	**LINE B TERMINALS**	● Video signal input/output terminals (BNC). ● These terminals have automatic termination. When BNC connectors are connected into IN and OUT terminals. 75Ω termination will be automatically opened.

No.	NAME	PURPOSE
28	**EXT. SYNC TERMINALS** 	● Synchronize input/output terminals (BNC). ● These terminals have automatic termination. When BNC connectors are connected into IN and OUT terminals. 75Ω termination will be automatically opened.
29	**RGB YPBPR TERMINALS (R G B IN/ R G B OUT)** 	● RGB signal or component signal (YP_BP_R) terminals (BNC). ● These terminals have automatic termination. When BNC connectors are connected into IN and OUT terminals. 75Ω termination will be automatically opened.
30	**VTR (8 PIN) TERMINAL** 	● VTR video signal input/output.

Pin No.	Function	Pin No.	Function
1	————	5	————
2	Video signal IN	6	GND (IN)
3	GND (OUT)	7	————
4	Video signal OUT	8	————

31	**WIDTH CONTROL**	● Adjust the width of the picture. 
32	**HEIGHT CONTROL**	● Adjust the height of the picture. 
33	**⬡ WIDTH CONTROL (Underscan)**	● Adjust the underscanned width of the picture. 
34	**⬡ HEIGHT CONTROL (Underscan)**	● Adjust the underscanned height of the picture. 
35	**H. CENT. CONTROL**	● Adjust the horizontal position of the picture. 

Video Signal Performance

For PAL Decoder Section:
- Differential Gain; Within 5%
- Differential Phase; Within 5°
- Frequency Response; 100 Hz to 8 MHz ±3 dB

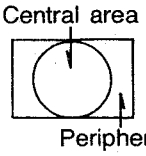
For RGB Input Section:
- Differential Gain; Within 5%
- Differential Phase; Within 5°
- Frequency Response; 100 Hz to 8 MHz ±3 dB

Synchronization Performance

AFC Time Constant:	0.4 msec. FAST 1.6 msec. SLOW
Line Hold Range:	More than ±500 Hz
Retrace Time:	Horizontal retrace time within 10μsec. Vertical retrace time within 1 msec.
Interace:	Better than 40/60

Picture Performance

Overscan:	5% overscan of CRT effective screen area
Underscan:	5% underscan of CRT effective screen area
Linearity:	Within a central area bounded by a circle whose diameter equals the picture height; within 5% Out of area; within 7%
Colour Temperature:	6500°K, adjustable to other colour temperatures
Convergence Error:	Central area; Less than 0.8 mm Periphery; Less than 1.2 mm



Raster Size Stability:	Less than 4% of picture height, (0~500μA Beam Corrent)
Resolution:	More than 550 TV lines (Center, at Preset luminance)
Maximum Brightness:	More than 60 fL (at window pattern)
Preset Contrast:	35 fL ±5 fL

Environment

Operating Temperature Range:	0°C to 40°C (32°F to 104°F)
Humidity:	0% to 90%

General

Warm Up:	30 minuits to meet specifications
Anode Voltage:	Properly adjust HV 25.2 KV at zero beam current
Power Consumption:	98W
Power Requirements:	Alternating Current (AC) 220~240V ±10%, 50 Hz
Dimensions:	448 x 414 x 511 mm
[W×H×D]	17 $^{21}/_{32}$ x 16 $^{5}/_{16}$ x 20 $^{1}/_{8}$ inches
Mass (Weight):	29 kg (63 $^{7}/_{8}$ lbs.)
Supplied Accessories:	AC Power Cord (1) Operating Instructions (1) Rack Mount Angles (2)

- Specifications are subject to change without notice. Weight and dimensions shown are approximate.

CONTENTS

SAFETY PRECAUTIONS

GENERAL GUIDELINES

1. It is advisable to insert an isolation transformer in the AC supply before servicing a hot chassis.
2. When servicing, observe the original lead dress, especially the lead dress in the high voltage circuits. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.
3. After servicing, see to it that all the protective devices such as insulation barriers, insulation papers, shields, and isolation R-C combinations, are properly installed.
4. Before turning the monitor on, measure the resistance between B+ line and cold side chassis earth. Connect the ⊖ side of an ohmmeter to the B+ lines, and the ⊕ side to chassis earth. Each line should have more resistance than specified, as follows:

B+ Line	Minimum Resistance
1kV (TPD4)	3kΩ
160V (TPD120)	4kΩ
100V (TPD91)	3kΩ
24V (TPD24)	400Ω
17V (IC801 ① pin)	400Ω
12V (TPD12)	400Ω

5. When the monitor is not used for a long period of time, unplug the power cord from the AC outlet.
6. Potentials, as high as 26.0 kV are present when this monitor is in operation. Operation of the monitor without the rear cover involves the danger of a shock hazard from the monitor power supply. Servicing should not be attempted by anyone who is not thoroughly familiar with the precautions necessary when working on high voltage equipment. Always discharge the anode of the picture tube to chassis earth before handling the tube.
7. After servicing, make the following leakage current checks to prevent the customer from being exposed to shock hazards.

LEAKAGE CURRENT COLD CHECK

1. Unplug the AC cord and connect a jumper between the two prongs on the plug.
2. Turn on the monitor's power switch.
3. Measure the resistance value, with an ohmmeter, between the jumpered AC plug and each exposed metallic cabinet part on the monitor, such as screwheads, connectors, control shafts, etc.
   When the exposed metallic part has a return path to the chassis, the reading should be more than 1MΩ.
   When the exposed metal does not have a return path to the chassis, the reading must be ∞.

LEAKAGE CURRENT HOT CHECK (See Fig. 1)

1. Plug the AC cord directly into the AC outlet. Do not use an isolation transformer for this check.
2. Connect a 1.5 kΩ, 10 watt resistor, in parallel with a 0.15 μF capacitor, between each exposed metallic part on the set and a good earth ground such as a water pipe, as shown in Fig. 1.
3. Use a high impedance AC voltage meter to measure the potential across the resistor.
4. Check each exposed metallic part, and measure the voltage at each point.
5. Reverse the AC plug in the AC outlet and repeat each of the above measurements.
6. The potential at any point should not exceed 0.75 volts RMS. A leakage current tester (Simpson Model 229 or equivalent) may be used to make the hot checks, leakage current must not exceed 500μA. In case a measurement is outside of the limits specified, there is a possibility of a shock hazard, and the monitor should be repaired and rechecked before it is returned to the customer.

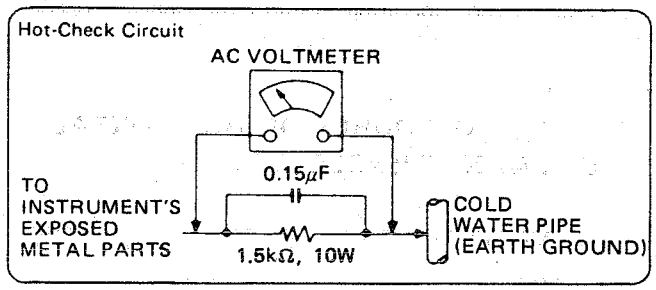


Fig. 1

X-RADIATION

WARNING: 1. The potential source of X-Radiation in monitor set is the high voltage section and picture tube.
2. When using a picture tube test jig for service, make sure that the jig is capable of handling 26.0 kV without causing X-Radiation.

NOTE: It is important to use an accurate, periodically calibrated high voltage meter.

1. Turn the Set-up switch (SW5806) and Underscan switch ▣ to the ON position.
2. Turn the Brightness control (R5824) fully counter-clockwise.
3. Set the Service switch (S401) to the SERVICE position.
4. Measure the high voltage. The meter (electrostatic type) reading should indicate 24.5 kV $^{+\ 1.5\ kV}_{-\ 1.2\ kV}$. If the meter indication is out of tolerance, immediate service and correction is required to prevent the possibility of premature component failure.
5. To prevent an X-Radiation possibility, it is essential to use the specified picture tube.

HORIZONTAL OSC. DISABLE CIRCUIT TEST

This test must be made as a final check before the set is returned to the customer.

1. When the rear cover removed, supply a normal 220V ~ 240V AC to the set, turn on the power switch.
2. Set the customer controls to their normal operating position.
3. Make short circuit TPD91 and pin ④ of IC551 with a 3kΩ resistor.
4. If this does not occur, the Horizontal Osc. Disable Circuit is not operating. Follow the Repair Procedures of Horizontal Oscillator Disable Circuit before the set is returned to customer.

REPAIR PROCEDURES OF HORIZONTAL OSCILLATOR DISABLE CIRCUIT

1. Connect a DC voltmeter between capacitor C573 ⊕ on the A-board and chassis earth. If nearly +24.7V is not present on that point, find the cause.
   Check R570, C573 and D557.
2. Connect a DC voltmeter between pin ⑫ of IC501 on the A-board and chassis earth.
   If nearly +2.1V is not present on that point, check R5631, R511, R512, R513, D510, IC551 and IC501.
3. Carefully check the above specified parts and related circuits and parts. When the circuit is repaired, the Horizontal Oscillator Disable Circuit Test must be made again.

CIRCUIT EXPLANATION

HORIZONTAL OSCILLATOR DISABLE CIRCUIT

The positive DC voltage supplied from the cathode of D557 for monitoring the high voltage is applied to pin ④ of IC551 through R570 and to the base of Q903 through R909.

The voltage at the emitter of Q903 is regulated by zener diode D901. Under normal conditions, the voltage applied across the base and emitter of Q903 is not sufficient to cause emitter current to flow and holds the transistor cut off.

If the high voltage exceeds the specified level, the positive DC voltage supplied from the cathode of D557 increases. The voltage through D557 is dividing by R909 and R908, and applied to the base of Q903. If Vbe is nearly more than +0.7V, the transistor Q903 turns on, and the collector voltage of Q903 lowers which is connected to the base of Q902.

Therefore Q902 turns on, and the collector voltage of Q902 increases, which is connected to the base of Q901. Consequently Q901 turns on, and collector current of Q901, which is connected to the pin ⑫ of IC501, begins to flow simultaneously. This causes the horizontal oscillator frequency to increase, and also causes loss of horizontal synchronization. (Fig. 1).

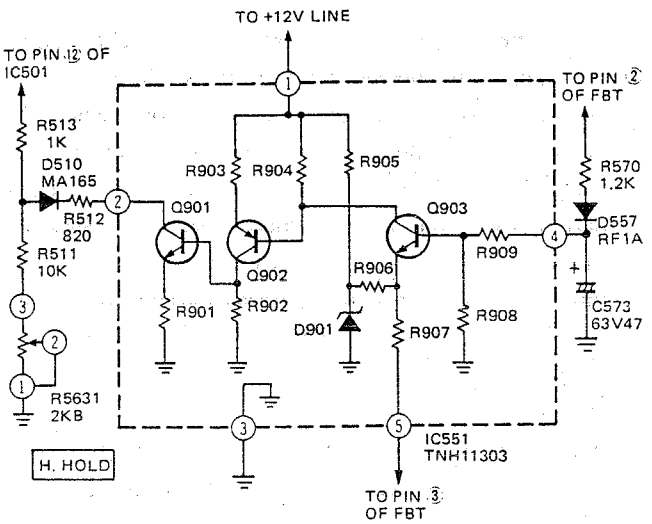
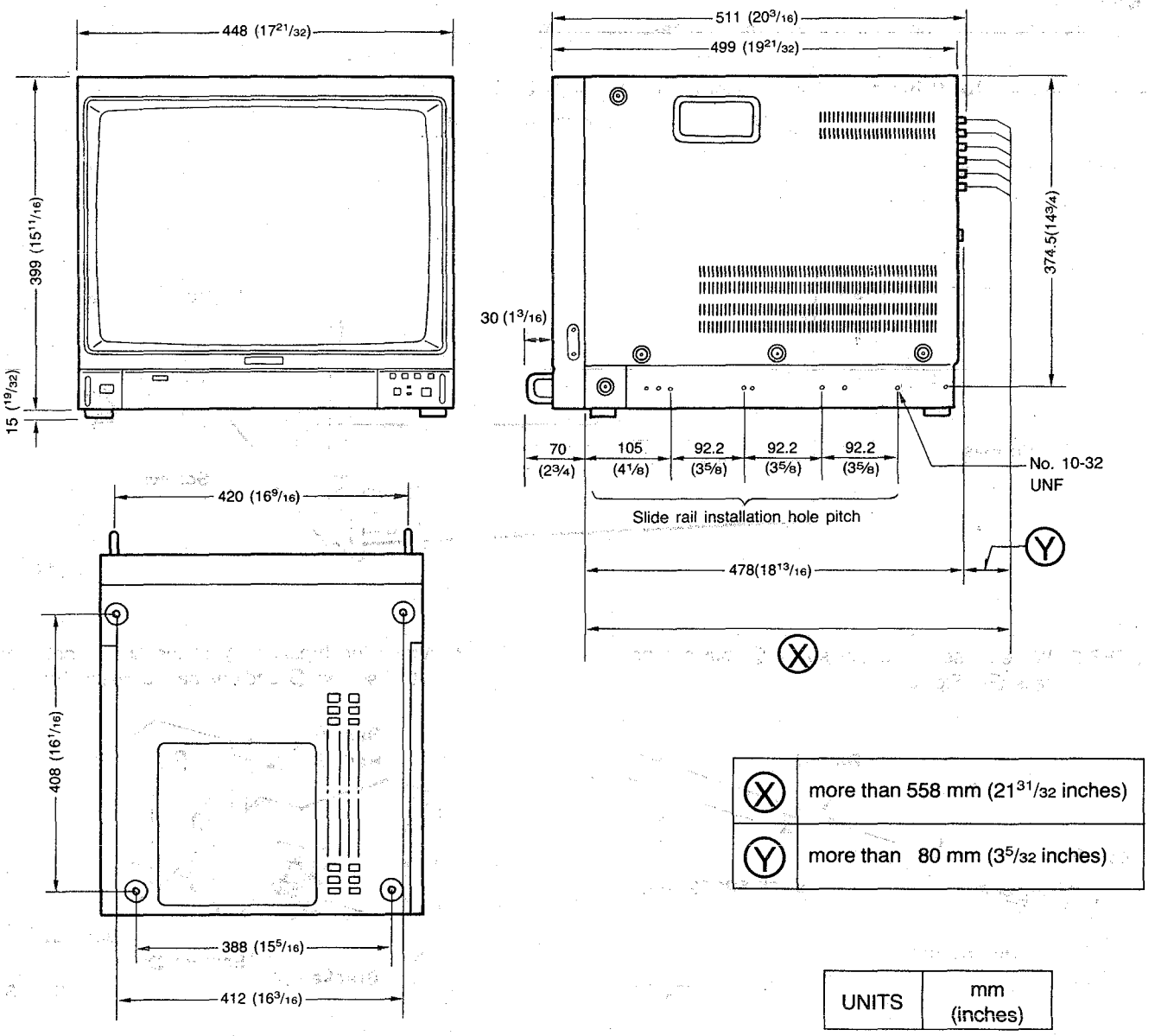


Fig. 1

DIMENSIONS



(X)	more than 558 mm (21 31/32 inches)
(Y)	more than 80 mm (3 5/32 inches)

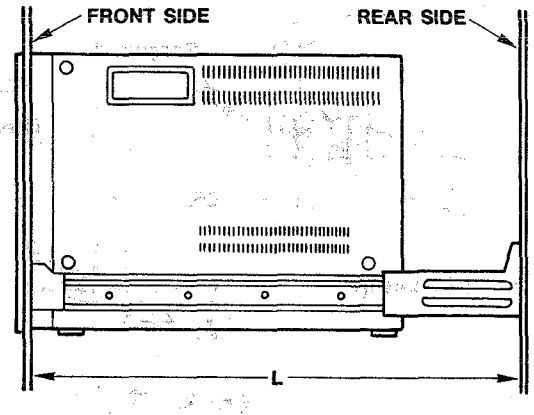
UNITS	mm (inches)

METHOD OF RACK MOUNT

1. **Rack Width**
   This colour video monitor fits most 482.6 mm (19 inches) wide cabinet racks.
   EIA STANDARD: RS-310-C
2. **Rack Depth**
   Rack depth should be more than 550 mm (22 inches).
3. **Slide and Bracket**
   We recommend the following for proper installation.

Chassis-Track's	
Distance: L	**Slide**
L = 490~590 mm	C-300-S-116
L = 540~640 mm	C-300-S-118

Note: Concerning bracket for slide rail installation use; please purchase the one that corresponds to the rack structure from rail (or rack) maker.

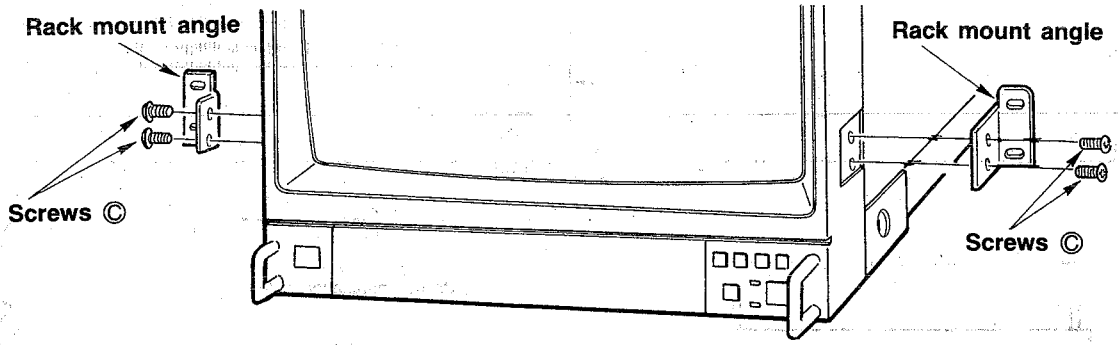


4. Slide and Bracket mounting.

Note:
The mounting using slide of the chassis-track's is described below.

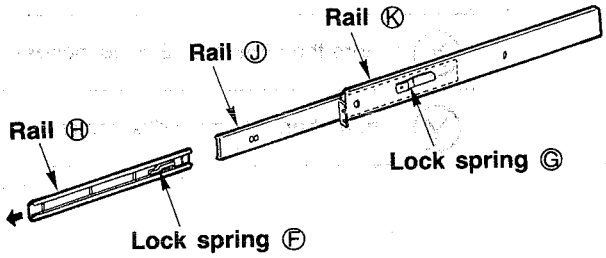
● **Accessories for this unit:** Rack mount angles, Brackets Ⓐ, Brackets Ⓑ, Screws Ⓒ, Screws Ⓔ, Washers Ⓜ, Nuts Ⓝ.

STEP 1. Mount and secure both the right and left rack mount angles (attached to BT-D2020PY/D2020PYG) on the unit using 2 screws Ⓒ each. [Fig. 1]



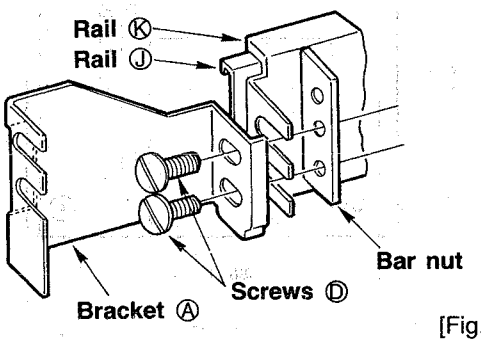
[Fig. 1]

STEP 2. While pressing the lock spring Ⓕ, pull out the rails Ⓗ. [Fig. 2]



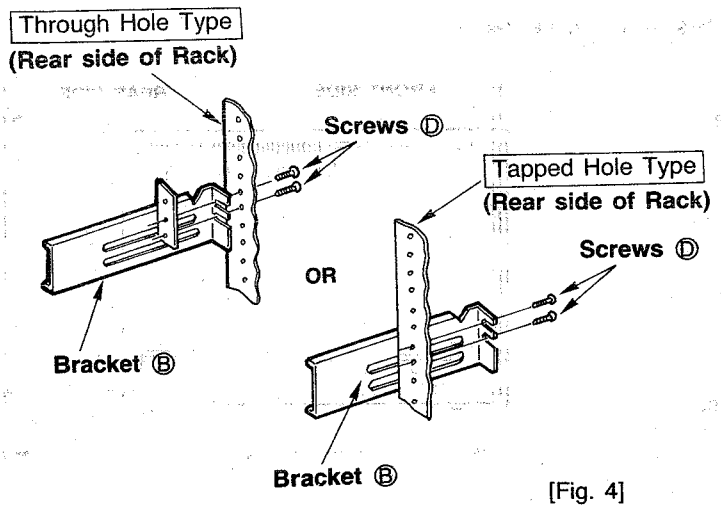
[Fig. 2]

STEP 3. Attach the brackets Ⓐ at the tips of both rails with 2 screws Ⓓ and one bar nut each. [Fig. 3]



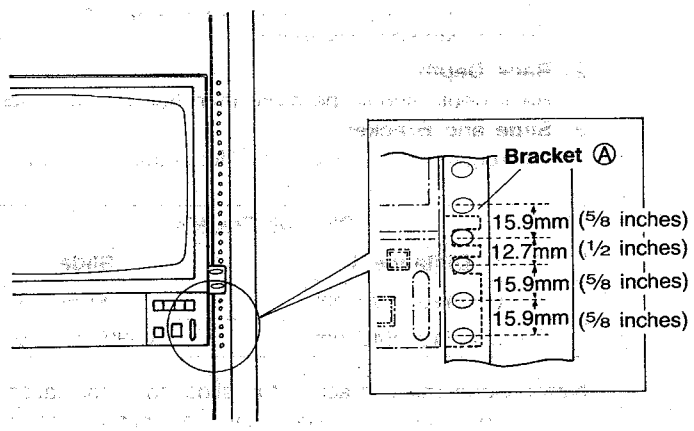
[Fig. 3]

STEP 4. Mount and secure both the right and left brackets Ⓑ on the rack using 2 screws Ⓓ each. [Fig. 4]

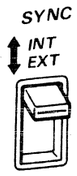
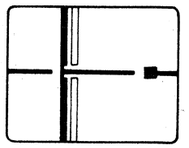
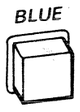
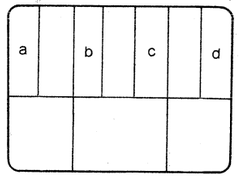


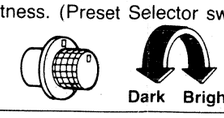
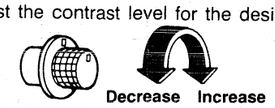
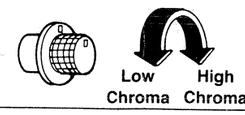
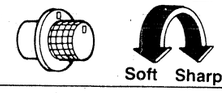
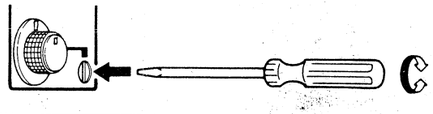
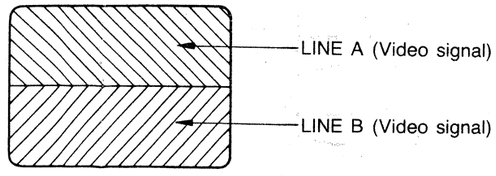
[Fig. 4]

STEP 5. Attach the brackets Ⓐ at the location shown in [Fig. 5].

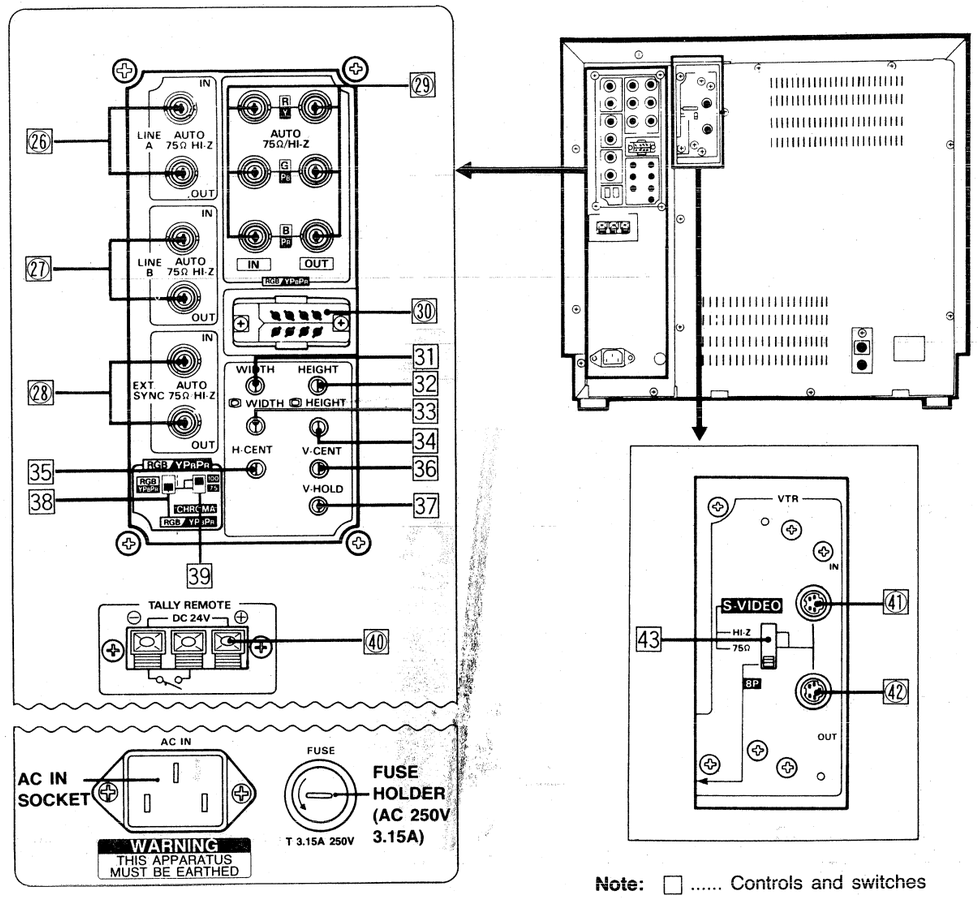


[Fig. 5]

No.	NAME	PURPOSE
14	**SYNC (INT/EXT) SELECTOR SWITCH** 	**INT:** The monitor operates on the sync signal from the displayed composite video signal. **EXT:** The monitor operates on an external sync signal supplied from the Ext. Sync terminals [28] on the rear panel.
15	**UNDERSCAN SWITCH** 	Depress this switch for underscanning. The display size is reduced by approximately 5% so that four corners of the raster are visible.
16	**VERTICAL DELAY SWITCH** 	Depress this switch to observe the vertical sync signal. The picture is delayed vertically and the vertical sync signal is displayed near the center of the screen. Picture brightness is automatically increased for easy observation. ● A pulse cross is displayed by depressing both the ◫ and ⊟ switches. 
17	**HORIZONTAL DELAY SWITCH** 	Depress this switch to observe the horizontal sync signal. The picture is delayed horizontal and the horizontal sync signal is displayed in the left size of the screen. Picture brightness is automatically increased for easy observation.
18	**BLUE SIGNAL ONLY SWITCH** 	Depress this switch to observe BLUE signal in Black and White. This makes it easier to adjust chrominance (using colour bar display) and increases visibility of video tape dropouts and playback noise.  (colour bar pattern) **Note:** When Chroma control [21] is turned, and (a)~(d) white level is adjusted to the same, it will be the standard colour.

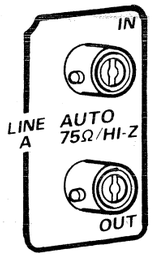
No.	NAME	PURPOSE
19	**BRIGHTNESS CONTROL**	Adjust the brightness level for the desired overall picture or display brightness. (Preset Selector switch [24] to "OFF" position) 
20	**CONTRAST CONTROL**	Adjust the contrast level for the desired overall contrast. (Preset Selector switch [24] to "OFF" position) 
21	**CHROMA CONTROL**	Adjust the chroma control to set the colour staturation level. (Preset Selector switch [24] to "OFF" position) 
22	**APERTURE CONTROL**	● Turn clockwise to get a crisper picture. ● Turn counterclockwise to get a softer picture. (Preset Selector switch [24] to "OFF" position) 
23	**PRESET CONTROLS**	Each preset controls which belong the manual controls are enabled at Preset Selector switch [24] to "ON" position. Preset levels are preadjusted at factory shipment. 
24	**PRESET SELECTOR SWITCH** 	This switch is used to select whether the picture is at a preset level (fixed), or manually setting the level. ● **PRESET "ON"** : Preset level (fixed) ● **PRESET "OFF":** Enable manual controls. **CONTRAST** ; Adjust the picture contrast level. **BRIGHTNESS;** Adjust the picture brightness level. **CHROMA** ; Adjust the colour saturation level. **APERTURE** ; Adjust the picture to a sharper level.
25	**A/B SPLIT SELECTOR SWITCH** 	Video signals on Line A terminals [26] and Line B terminals [27] can be monitored respectively in the upper and lower halves of a picture by setting this switch to "ON". For detail, refer to page 13 and 14.  ① Sync signal of Line A and Line B should be the same. ② Input the Sync signal by Ext. Sync terminals [28] .

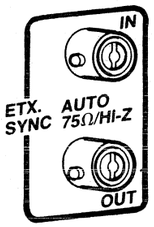
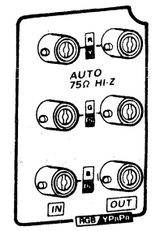
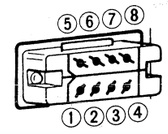
BACK CONTROLS AND TERMINALS



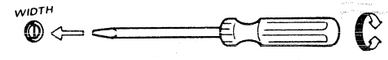
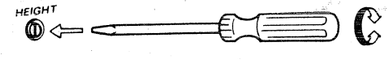
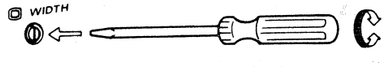
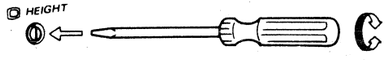
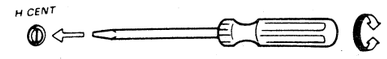
Note: □ ..... Controls and switches

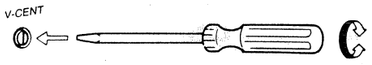
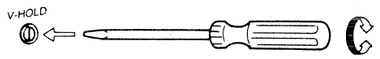
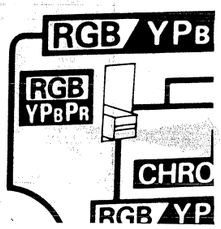
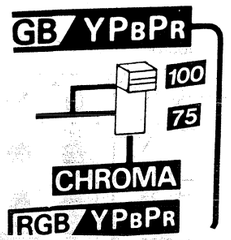
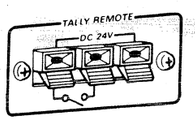
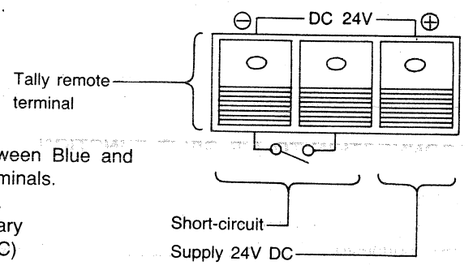
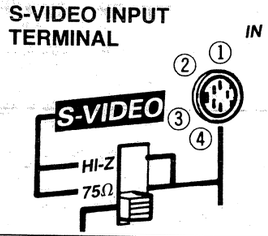
⬡ ..... Terminals

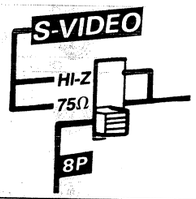
No.	NAME	PURPOSE
26	**LINE A TERMINALS** 	● Video signal input/output terminals (BNC). ● These terminals have automatic termination. When BNC connectors are connected into IN and OUT terminals. 75Ω termination will be automatically opened.
27	**LINE B TERMINALS**	● Video signal input/output terminals (BNC). ● These terminals have automatic termination. When BNC connectors are connected into IN and OUT terminals. 75Ω termination will be automatically opened.

No.	NAME	PURPOSE
28	**EXT. SYNC TERMINALS** 	● Synchronize input/output terminals (BNC). ● These terminals have automatic termination. When BNC connectors are connected into IN and OUT terminals. 75Ω termination will be automatically opened.
29	**RGB YPBPR TERMINALS (R G B IN/ R G B OUT)** 	● RGB signal or component signal (YP_BP_R) terminals (BNC). ● These terminals have automatic termination. When BNC connectors are connected into IN and OUT terminals. 75Ω termination will be automatically opened.
30	**VTR (8 PIN) TERMINAL** 	● VTR video signal input/output.

Pin No.	Function	Pin No.	Function
1	———	5	———
2	Video signal IN	6	GND (IN)
3	GND (OUT)	7	———
4	Video signal OUT	8	———

31	**WIDTH CONTROL**	● Adjust the width of the picture. 
32	**HEIGHT CONTROL**	● Adjust the height of the picture. 
33	**⬡ WIDTH CONTROL (Underscan)**	● Adjust the underscanned width of the picture. 
34	**⬡ HEIGHT CONTROL (Underscan)**	● Adjust the underscanned height of the picture. 
35	**H. CENT. CONTROL**	● Adjust the horizontal position of the picture. 

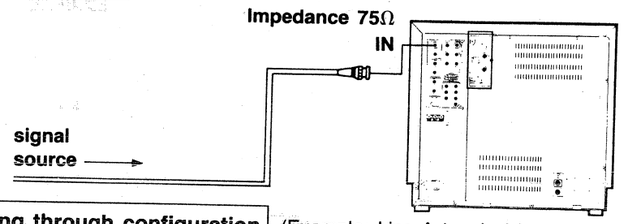
No.	NAME	PURPOSE
36	**V-CENT. CONTROL**	● Adjust the vertical position of the picture. 
37	**V-HOLD CONTROL**	● Adjust the vertical-hold control and set it at a point where vertical movement is stopped. 
38	**RGB/YPBPR SELECTOR SWITCH** 	This switch is for setting the received signal either to an RGB signal or to a component signal (YP_BP_R), when Input Selector switches 5 front side of this unit is set at RGB/YPBPR position. ● When RGB signal is connected to the RGB/YPBPR terminals 29, change over to RGB side. ● When component signal (YP_BP_R) is connected to RGB/YPBPR terminals, change over to YPBPR side.
39	**CHROMA SELECTOR SWITCH** 	This switch is for setting chromatic level turning to the connected signal, when the component signal (YP_BP_R) is connected to the RGB/YPBPR terminals. ● In the case of 100% colour bar standard system (MII system), change over to the 100 side. ● In the case of 75% colour bar standard system, change over to the 75 side.
40	**TALLY REMOTE TERMINALS** 	**Method A)** 1. Supply 24V DC between Red and Black (GND) terminals. 2. Tally lamp lights.  **Method B)** 1. Short-circuit between Blue and Black (GND) terminals. 2. Tally lamp lights. (It is not necessary to supply 24V DC)
41	**S-VIDEO INPUT TERMINAL** 	● Luminance signal and chroma signal input terminal (4 pin). **Pin No. / Function / Pin No. / Function** 1 / GND (Luminance) / 3 / Chroma 2 / Luminance / 4 / GND (Chroma)

No.	NAME	PURPOSE
42	**S-VIDEO OUTPUT TERMINAL** 	● Luminance signal and chroma signal output terminal (4 pin). **Pin No. / Function / Pin No. / Function** 1 / GND (Luminance) / 3 / Chroma 2 / Luminance / 4 / GND (Chroma)
43	**8 PIN/S-VIDEO SELECTOR & INPEADANCE SELECTOR SWITCH** 	● 8P (VTR) and S-Video terminal selector switch. ● When bridging or looping through the S-Video signals, set this switch at High position, and for other cases this switch should be set at 75Ω position.

◆ Automatic Termination

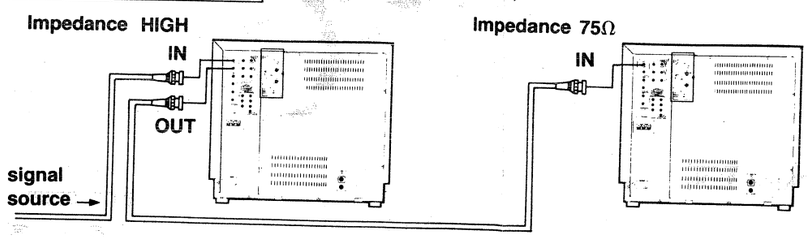
Automatic Termination refers to Panasonic's original automatic impedance selector system. It replaces the Impedance Selector switch used in existing monitors. The impedance is automatically set to 75Ω by the input of a signal to the input terminal while operating in the non-output mode [Fig. Ⓐ]. However, if equipment is connected to the Line-out terminal, the connection is put in the open status by the Loop Through Configuration and high impedance is automatically selected. [Fig. Ⓑ]

Normal operation (Example: Line A terminals)



[Fig. Ⓐ]

Looping through configuration (Example: Line A terminals)



[Fig. Ⓑ]

Note:

1. The video terminals of the BT-D2020PY/D2020PYG are designed for use with BNC connectors, and the use of a special 75Ω connector is not required.
2. Even if connection to terminal (IN-OUT) is reversed by mistake, the Loop Through Configuration of Panasonic's new video monitor ensures normal operation.

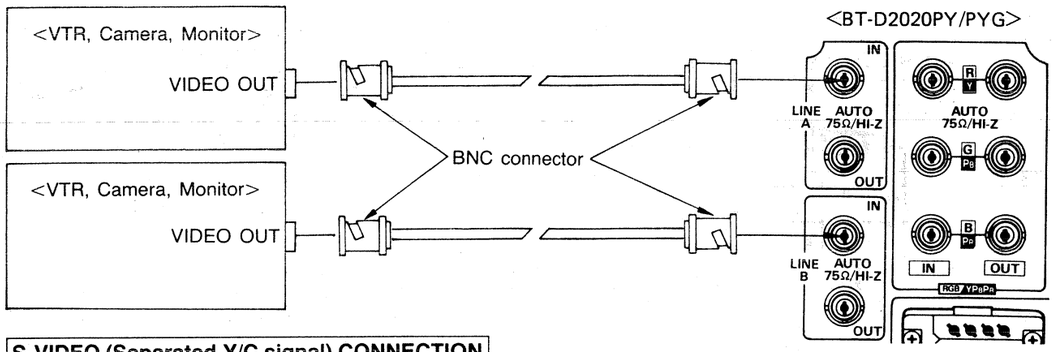
CAUTION:
The IN/OUT terminal of S-VIDEO (Separated Y/C signal) has no automatically termination mechanism.
If the S-VIDEO (Separated Y/C signal) is connected, the Inpeadance Selector switch 43 of the terminals at the back side should be set to the appropriate position 75 Ω or HI-Z.

CONNECTIONS

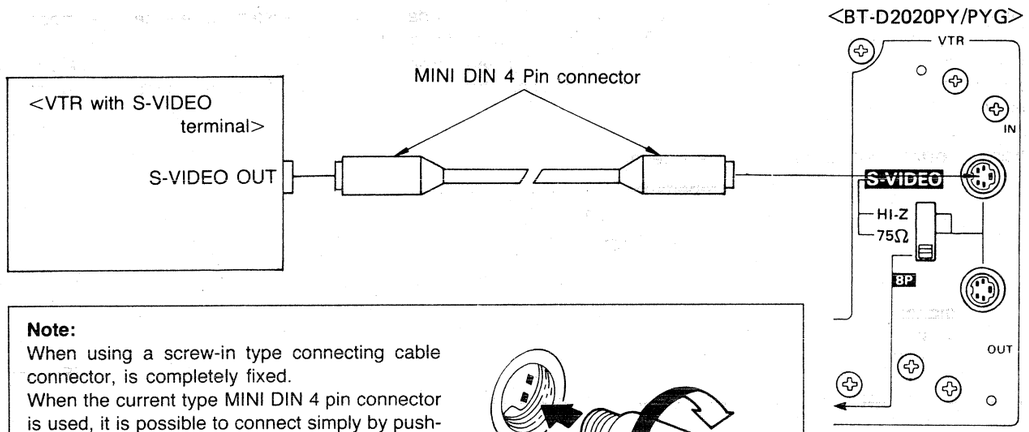
Note: Refer to these connecting instructions as follows together with the operating manual of the apparatus that is to be connected to this unit.

1 LINE (A, B) CONNECTION

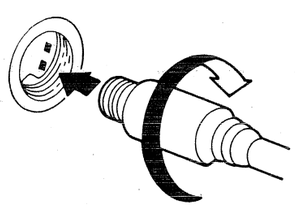
To connect the normal video signal (VTR, Camera, Monitor ... etc.), use BNC type connecting cable as follows.



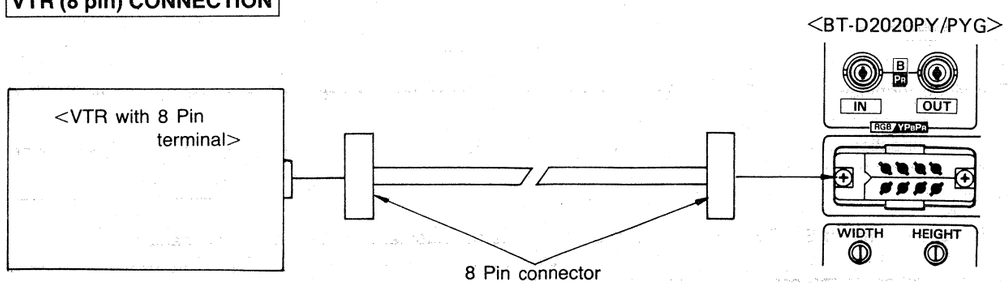
2 S-VIDEO (Separated Y/C signal) CONNECTION



Note:
When using a screw-in type connecting cable connector, is completely fixed.
When the current type MINI DIN 4 pin connector is used, it is possible to connect simply by pushing connector in.

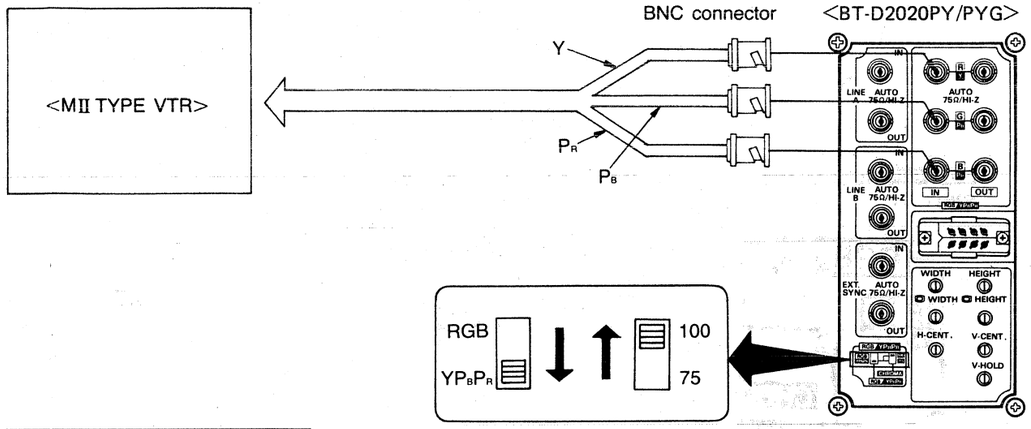


3 VTR (8 pin) CONNECTION



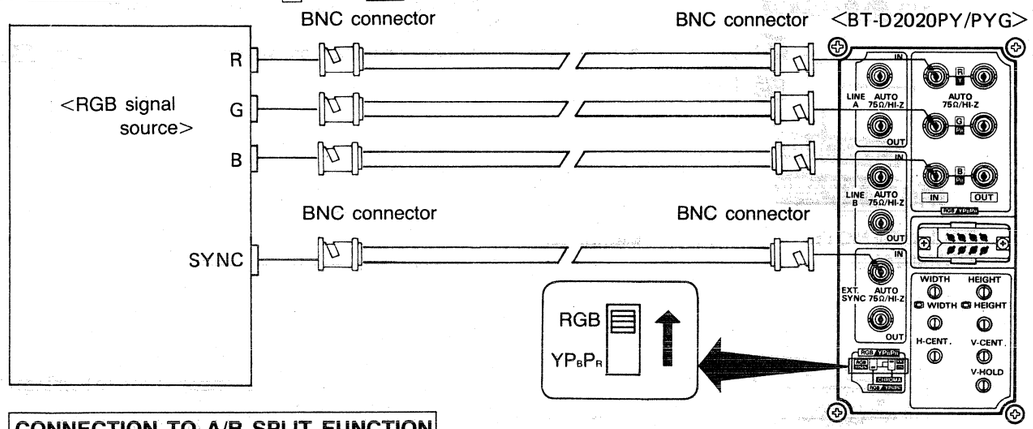
4 MII TYPE VTR CONNECTION

① When MII VTR is to be connected, connect the component signals (Y, P_B, P_R) to the RGB/YPBPR terminals of this unit, according to the procedures of the following figure.
② Set the front side Input Selector switch 5 to RGB/YPBPR mode.
③ Set RGB/YPBPR Selector switch 38 to YPBPR side.
④ Set Chroma Selector switch 39 to 100 side.



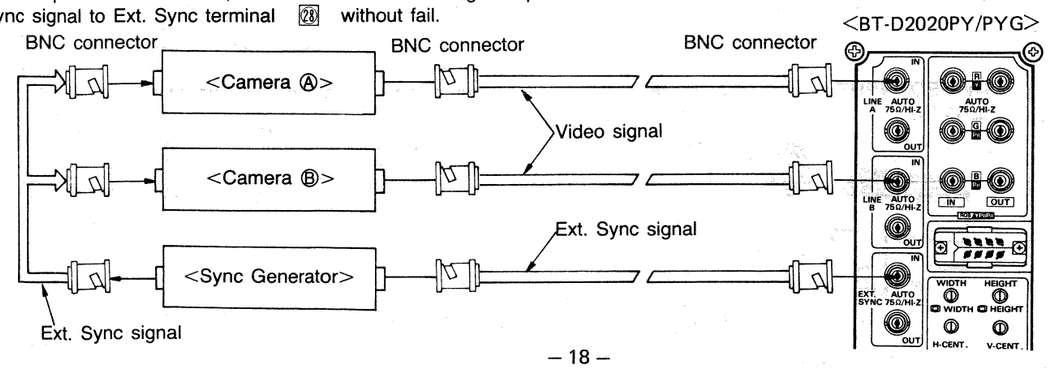
5 RGB SIGNAL CONNECTION

① Connect the RGB signals to the RGB/YPBPR terminals of this unit.
② Set the front side Input Selector switch 5 to RGB/YPBPR mode.
③ Set RGB/YPBPR Selector switch 38 to RGB side.



6 CONNECTION TO A/B SPLIT FUNCTION

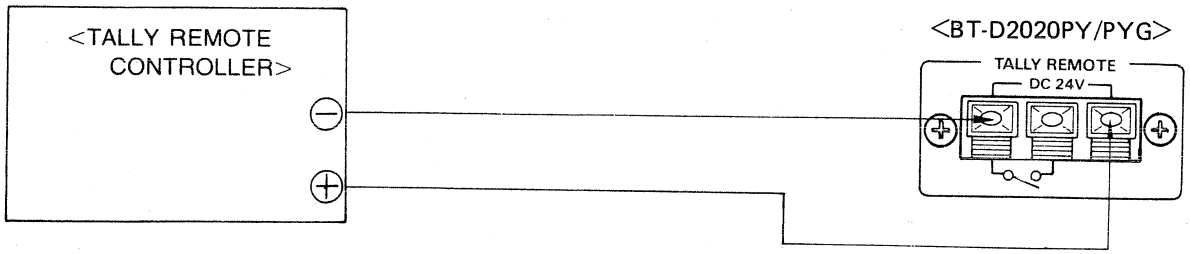
When split function is used, when indicates a video signal input via LINE A and LINE B on the same screen, input external sync signal to Ext. Sync terminal 28 without fail.



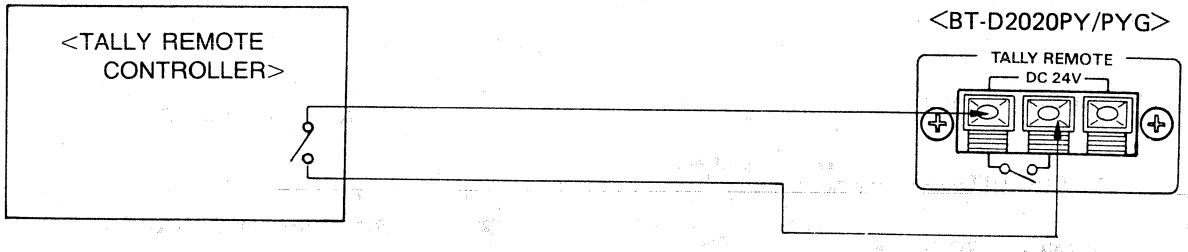
7 CONNECTION TO TALLY REMOTE FUNCTION

When TALLY REMOTE CONTROL signal is to be input, the following are 2 connecting methods;

Method 1; Connect the red terminal of 24 V DC to the ⊕ side, and its black (GND) terminal to the ⊖ side.



Method 2; Short-circuit the black (GND) terminal and the blue terminal.



DAILY ADJUSTMENT

Degaussing

Variation in the purity of the monitor due to the monitor is controlled as much as possible. If for any reason the monitor is moved, degauss the cathode-ray tube according to the procedure given below.

(1) The power supply is on as soon as the power switch is turned on. The light emitting diode located above the power switch light to indicate that the power supply is on.

(2) Push the degaussing switch located on the front panel for not less than 10 seconds. During this operation, the magnetization of the cathode-ray tube disappear. If the switch is released before 10 seconds elapse, the cathode-ray tube will become magnetized instead of becoming degaussed. Be sure to keep the switch down longer than 10 seconds.
If the switch is released before 10 seconds elapse, no degaussing is possible even if the switch is pushed again. Wait for 2 or 3 minutes before degaussing again.

(3) If the facility has its own separate degaussing coil (degausser), use it. This is the ideal degaussing operation.
In this operation, line voltage of AC is applied to the degausser. It should be moved close to the screen and moved in a circle two or three times directly in front of the screen. Then the degausser is slowly moved away from the screen and the power to the degausser is turned off when it is over 2m (6 feet) from the screen.

GENERAL ADJUSTMENT

Under normal operating conditions, the specified performance of the monitor can be obtained by operating the controls located on the front of the monitor.

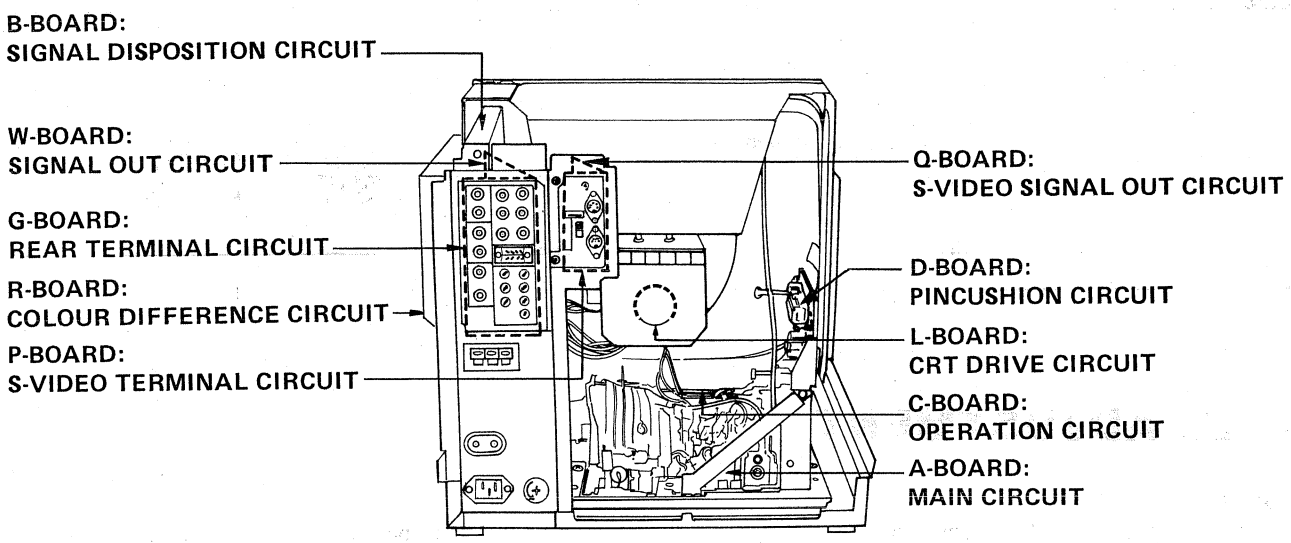
In case specified performance is not obtainable, refer to Measurements and Adjustment.

DISASSEMBLY INSTRUCTIONS

WARNING:

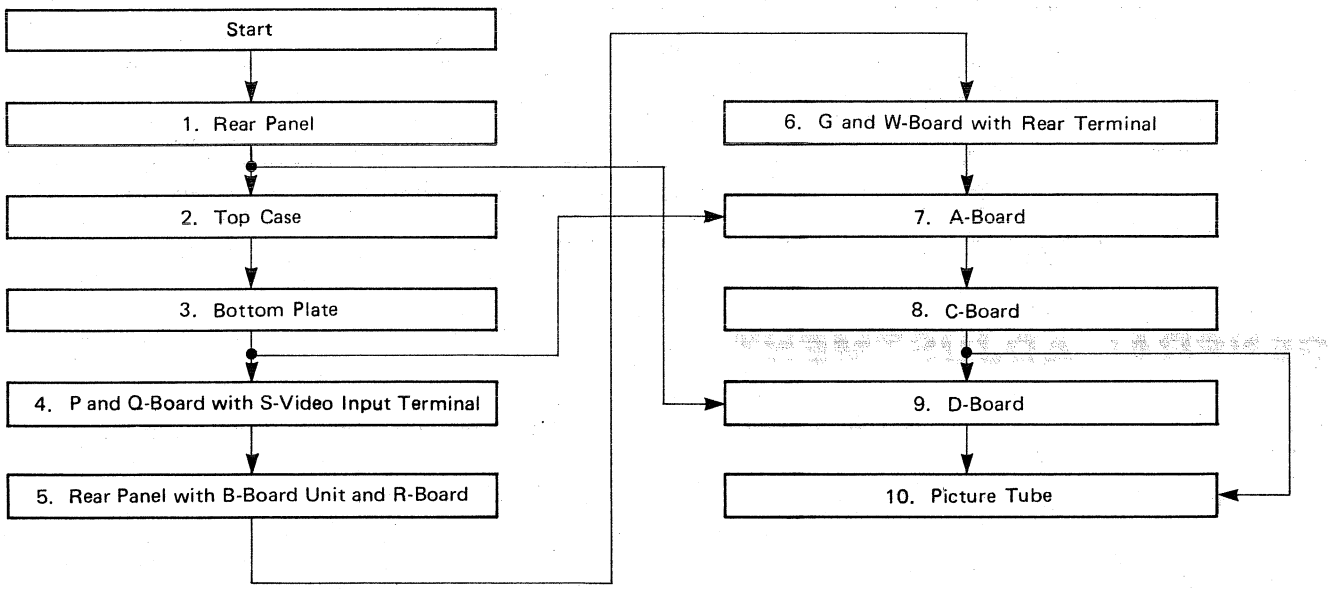
1. When turning over a P.W. Board to adjust it, be sure to lay on insulating material under it in order to prevent shorting.
2. P.W. Boards and wires should not be pulled forcibly, but be handled carefully.
3. Before disassembly, remove the AC plug from the wall outlet.
4. When removing the back over take care not to damage the neck of the CRT.
5. P.W. Boards and connectors should be handled with care avoid handling them forcibly !.
6. When handling the A-Board with the power ON, there is a risk of an Electric shock if you use the COLD side heat sink while working on the HOT side of the chassis.

CIRCUIT BOARD LAYOUT



DISASSEMBLY FLOWCHART

This flowchart indicates disassembly items of the cabinet parts and Circuit Boards in order to find the items necessary for servicing. When reassembling, perform the steps in the reverse order.



1. REMOVAL OF REAR PANEL

1. Remove 8 screws Ⓐ.
   Then carefully lift the rear panel.

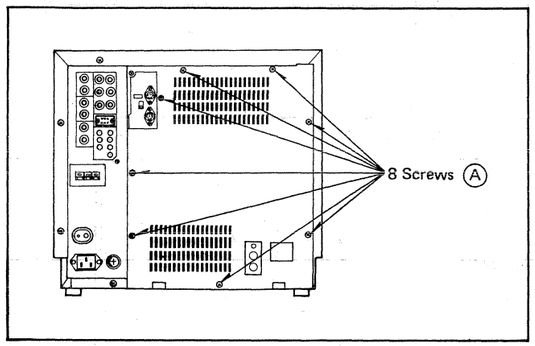


Fig. 1

2. REMOVAL OF TOP CASE

1. Remove the rear panel.
2. Remove 8 screws Ⓑ.

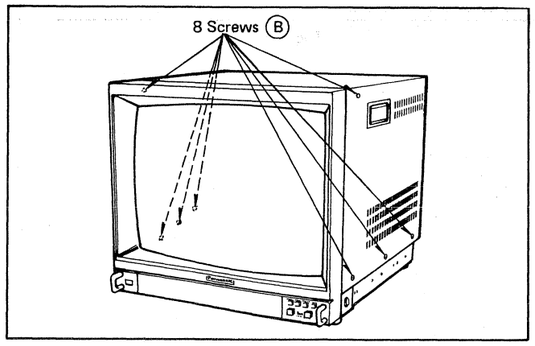


Fig. 2

3. Remove 3 screws Ⓒ.
   Then carefully lift the top case.

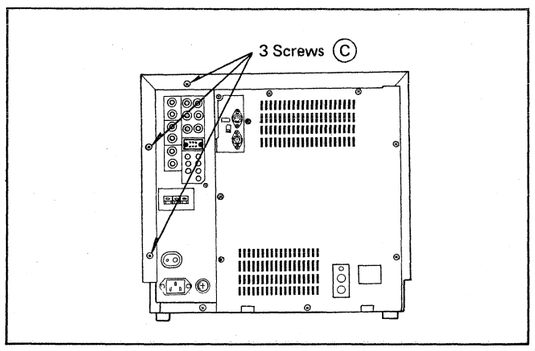


Fig. 3

3. REMOVAL OF BOTTOM PLATE

1. Remove 2 screws Ⓓ.
   Then carefully remove the bottom plate.

Note: Please the cushion under the set for not damaged the Front portion of the set.

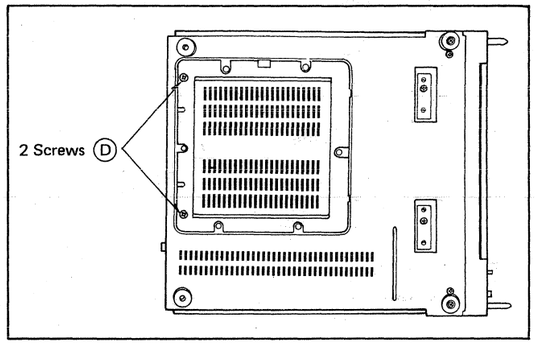


Fig. 4

4. REMOVAL OF P AND Q-BOARD WITH S-VIDEO INPUT TERMINAL (COLD)

1. Remove 2 screws Ⓔ.
   Then carefully remove the P and Q-Boards with S-Video input terminal.

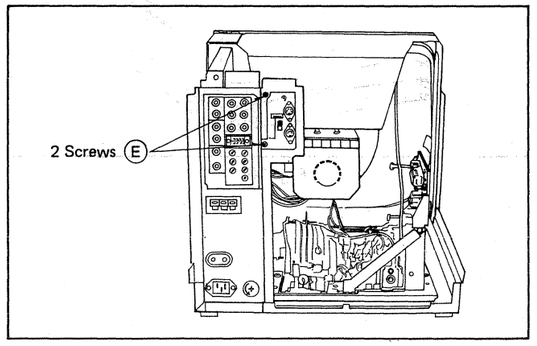


Fig. 5

5. REMOVAL OF REAR PANEL WITH B-BOARD UNIT AND R-BOARD (HOT AND COLD)

1. Remove 2 screws Ⓕ.

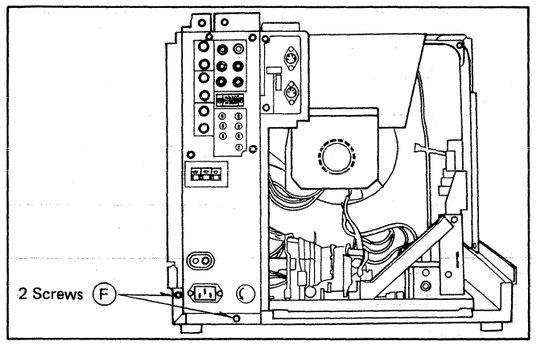


Fig. 6

2. Remove 2 screws Ⓖ and unlock the 2 locking portions. Then carefully tilt off the rear panel with B-Board unit and R-Board.

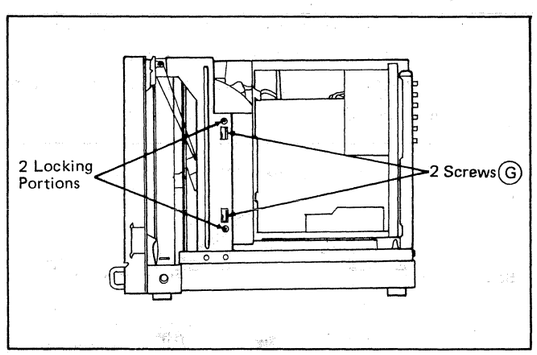


Fig. 7

6. REMOVAL OF G AND W-BOARD WITH REAR TERMINAL (COLD)

1. Remove the P and Q-Board with S-Video input terminal.
2. Remove 6 screws Ⓗ.
   Then carefully remove the G and W-Boards with rear terminal.

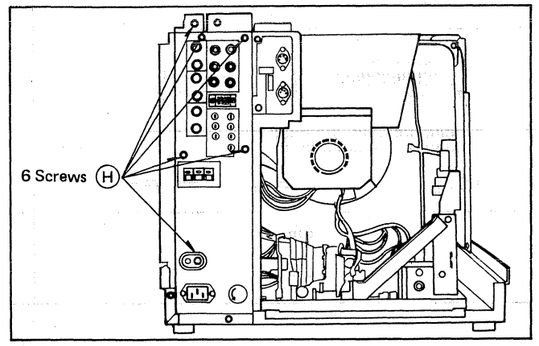


Fig. 8

7. REMOVAL OF A-BOARD (HOT AND COLD)

1. Remove 5 screws Ⓘ, and remove the reinforcing angle and A-Board holder.
2. Carefully slide the board toward you and remove the A-Board.

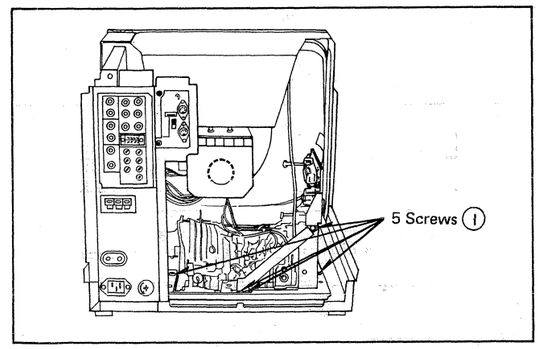


Fig. 9

8. REMOVAL OF C-BOARD (COLD)

1. Remove the A-Board.
2. Remove 2 screws Ⓙ.

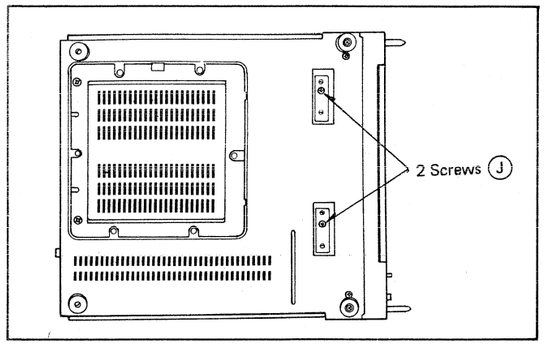


Fig. 10

3. Remove 4 control knobs.

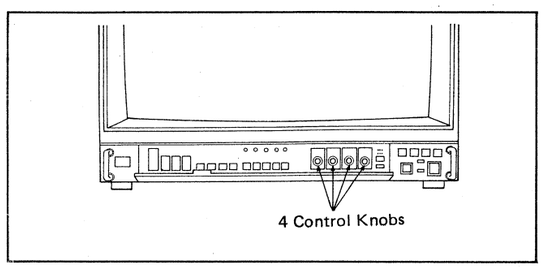


Fig. 11

4. Remove 3 screws Ⓚ.
   Then carefully remove the C-Board.

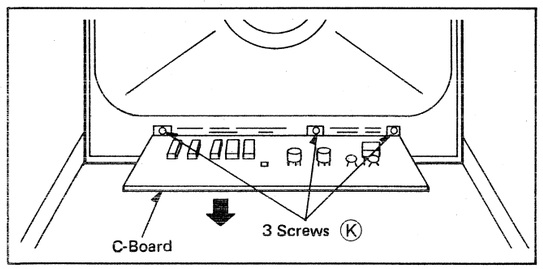


Fig. 12

9. REMOVAL OF D-BOARD (COLD)

1. Remove 2 screws Ⓛ.
   Then carefully remove the D-Board.

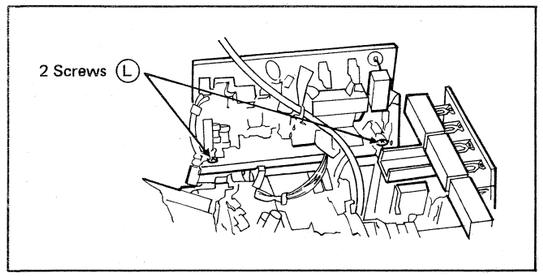
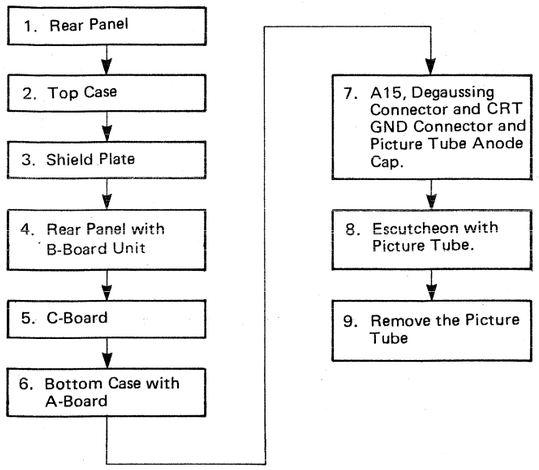


Fig. 13

10. REMOVAL OF PICTURE TUBE



1. Remove 4 screws Ⓜ.
2. Remove 2 screws Ⓝ and remove the shield plate.
   Then carefully remove the L (CRT)-Board.
3. Disconnect A15, Degaussing Connector and Picture Tube Anode Cap, and CRT GND connector.

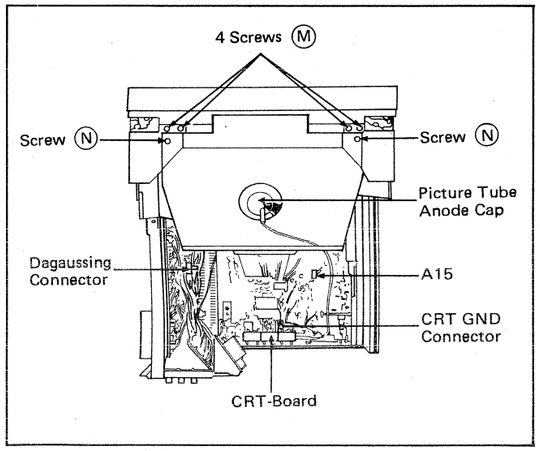


Fig. 14

4. Remove 4 screws Ⓞ.

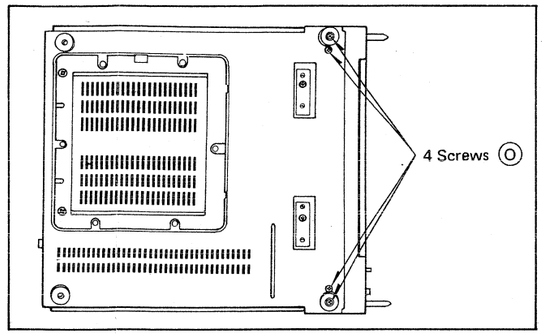


Fig. 15

5. Remove 2 screws Ⓟ.
   Then carefully remove the Escutcheon with Picture Tube.

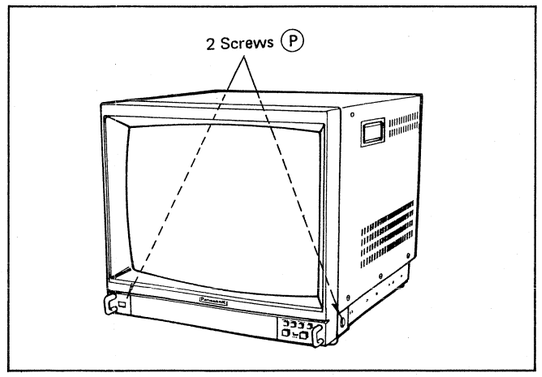


Fig. 16

6. Remove 4 screws Ⓞ.
   Then carefully lift top of picture tube.

Note: Place the cushion under the picture tube for not being damaged the CRT of the picture tube.

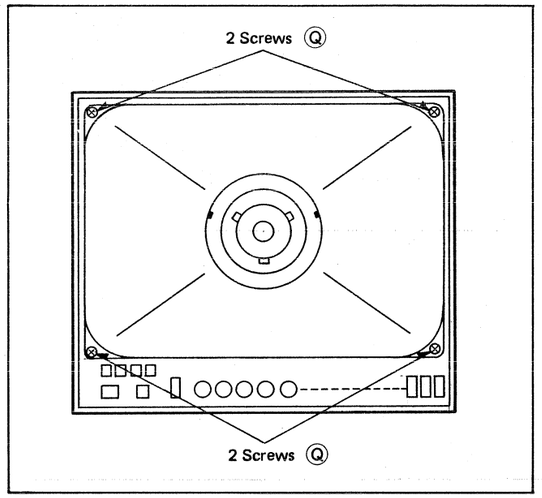


Fig. 17

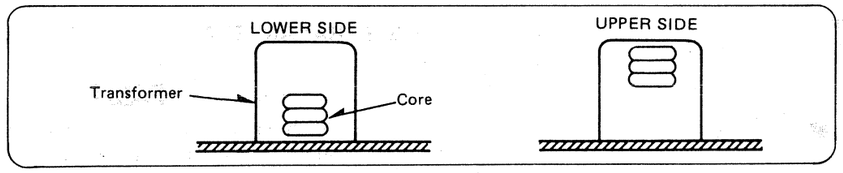
CAUTION FOR SERVICING

This model has a section that does not share a common sections are referred to as the HOT section and the earth with the power supply section. The different COLD section in the precautions below.

1. Do not touch the HOT section and the COLD section at the same time. You may receive an electric shock.
2. Do not short the HOT section to the COLD section. This could blow the fuse or even damage parts.
3. Never measure the HOT section and the COLD section at the same time when using tools such as oscilloscopes or multimeters.
4. Always unplug the unit before beginning any operation such as removing the chassis.

Note: (Application for both Field Alignment and General Alignment)

1. Use video pattern generator for following alignments. (Video input should read 1.0Vp-p.)
2. During alignment, use a non-metallic screwdriver to prevent an unexpected short circuit.
3. The transformer core which has two tuning peak points, should be adjusted at the lower position as below:



MEASUREMENTS AND ADJUSTMENT

B+ VOLTAGE (+100V) ADJUSTMENT

1. Connect an digital voltmeter between TPD91 and TPD5 (GND).
2. Apply a full field colour bar signal.
3. Adjust the R5631 (H-Hold) set it at a point where horizontal movement is stopped.
4. Adjust the R5633 (V-Hold) set it at a point where vertical movement is stopped.
5. Set the following controls and switches to the position indicated.
   - Brightness control (R5824) . . . fully counterclockwise
   - Service switch (S401) . . . . . service
   - Set-up switch (SW5806) . . . . . ON
   - Preset selector switch (SW5815) . . . . . OFF
6. Adjust R806 (+B2 Adj.) so that the voltage TPD91 becomes 103.0V ± 0.5V.
7. Return the controls and switches to their original position.

B+ VOLTAGE CONFIRMATION

1. Apply a full field colour bar signal.
2. Adjust the R5631 (H-Hold) set it at point where horizontal movement is stopped.
3. Adjust the R5633 (V-Hold) set it at a point where vertical movement stopped.
4. Set the following controls and switches to the position indicated.
   - Brightness control (R5824) . . . fully counterclockwise
   - Service switch (S401) . . . . . service
   - Set-up switch (SW5806) . . . . . ON
   - Preset selector switch (SW5815) . . . . . OFF
5. Connect an digital voltmeter between each test point as follows.
6. Confirm the indicated test point for the specificated voltage.

Test Point	Voltage
+B1 (TPD120 – TPD5 (GND))	160V ± 10V
+B3 (TPD24 – TPD5 (GND))	25.0V ± 2.0V
+B4 (TPB10 – TPD5 (GND))	14.0V $^{+1.0}_{-0.5}$V
+B5 (TPD12 – TPD5 (GND))	12.0V ± 0.5V

7. Return the controls and switches to their original position.

HIGH VOLTAGE CONFIRMATION

1. Set the following controls and switches to the position indicated.
   - Set-up switch (SW5806) . . . . . ON
   - Preset selector switch(SW5815) . . . . . OFF
   - Brightness control (R5824) . . . fully counterclockwise
2. Apply a full field colour bar signal.
3. Adjust the R5631 (H-Hold) set it at a point where horizontal movement is stopped.
4. Adjust the R5633 (V-Hold) set it at a point where vertical movement is stopped.
5. Connect a high voltage meter (electrostatic type) to the anode for the picture tube.
6. Confirm the indicated for the specified voltage.

Switch Position ⊡	Voltage
ON (Over Scan)	25.2 kV $^{+1.5}_{-1.2}$ kV
OFF (Under Scan)	25.2 kV $^{+1.5}_{-1.2}$ kV

H DELAY POSITION ADJUSTMENT

1. Apply a full field colour bar signal.
2. Connect a CH1 oscilloscope to TPB4 and earth, and CH2 oscilloscope to IC601 (2 pin) and earth.
3. Set the oscilloscope to CHOP mode.
4. Set the H-Delay switch ⊡ (SW5812) to ON.
5. Adjust R5429 (H. Delay Position) so that the burst position becomes as shown in Fig. 1.

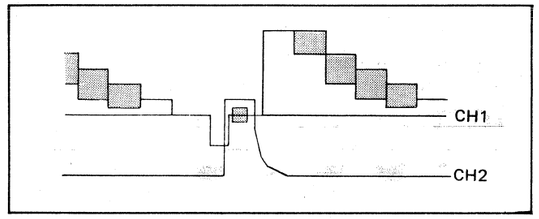


Fig. 1

6. Confirm that the screen is colour.
7. If screen is monochrome, turn R626 (Colour Sync.) left and/or right so that the colour picture is appeared.

4.43 MHz TRAP FILTER ADJUSTMENT

1. Apply a full field colour bar signal.
2. Connect an oscilloscope to TPB7 and earth.
3. Set the following switches to the position indicated.
   - Trap filter selector switch (SW5808) . . . . . OFF
   - Mode selector switch (SW5810) . . . . . AUTO
4. Adjust L5004 to set 4.43 MHz sub carrier at the minimum amplitude as shown in Fig. 2.
5. Confirm that 4.43 MHz sub carrier portion of the magenta is less than 25mVp-p as shown in Fig. 2.

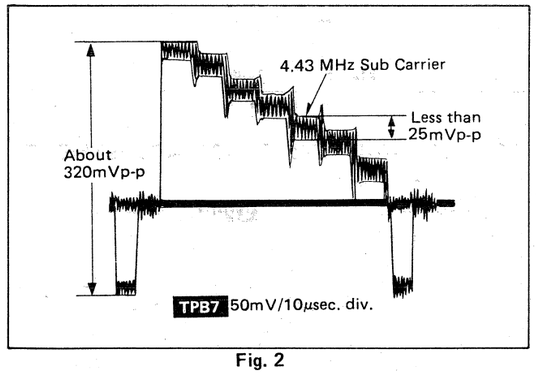


Fig. 2

APERTURE BALANCE ADJUSTMENT

1. Apply a black and white signal.
2. Connect an oscilloscope to TPB8 and earth.
3. Set the following switches to the position indicated.
   - Trap filter selector switch (SW5808) . . . . . ON
   - Mode selector switch (SW5810) . . . . . AUTO
4. Adjust R326 (Aperture Balance) so that the waveform TPB8 becomes as shown in Fig. 3.

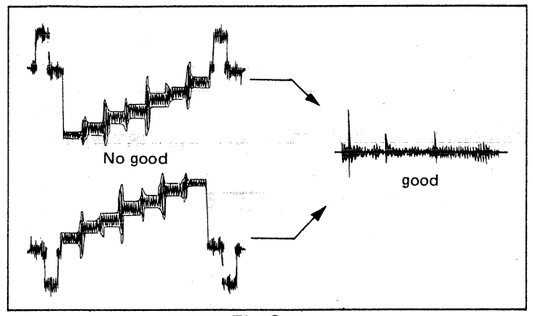


Fig. 3

APERTURE LEVEL ADJUSTMENT

1. Apply a CROSS-HATCH pattern signal.
2. Connect an oscilloscope to TPB8 and earth.
3. Set the following control and switches to the position indicated.
   - Aperture control (R5814) . . . . fully counterclockwise
   - Trap filter selector switch (SW5808) . . . . . ON
   - Mode selector switch (SW5810) . . . . . AUTO
   - Preset selector switch (SW5815) . . . . . OFF
4. Adjust R329 (Aperture Adj.) so that the TPB8 becomes 350mVp-p ± 20mVp-p as shown in Fig. 4.

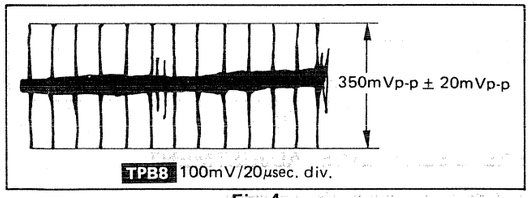


Fig. 4

Y (LUMINANCE) LEVEL ADJUSTMENT

1. Apply a full field colour bar signal.
2. Connect an oscilloscope to TPB9 and earth.
3. Set the following control and switches to the position indicated.
   - Aperture control (R5814) . . . . fully counterclockwise
   - Trap filter selector switch (SW5808) . . . . . ON
   - Mode selector switch (SW5810) . . . . . AUTO
   - Preset selector switch (SW5815) . . . . . OFF
4. Adjust R324 (Y-Level) so that the TPB9 becomes 1.05Vp-p ± 0.05Vp-p as shown in Fig. 5.

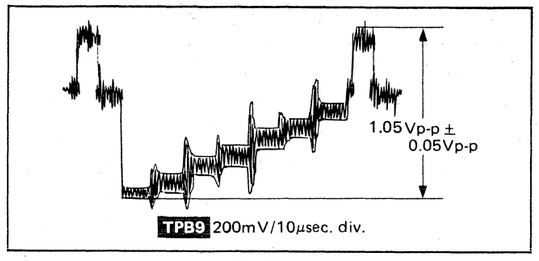


Fig. 5

5. Turn the Aperture control (R5814) clockwise and confirm that the spike moves smoothly onto edge of the waveform.

COLOUR SYNCHRONIZING ADJUSTMENT

1. Apply a fully field colour bar signal.
2. Connect an oscilloscope to **TPB6** and earth.
3. Set the following controls and switches to the position indicated.
   - Brightness control (R5824) . . . . . .fully clockwise
   - Chroma control (R5804) . . . . . .fully clockwise
   - Trap filter selector switch (SW5808) . . . . . ON
   - Mode selector switch (SW5810) . . . . . AUTO
   - Preset selector switch (SW5815) . . . . . OFF
   - Contrast control (R5819) . . . . . .fully clockwise
4. Adjust R626 (Colour Sync.) so that the signal level "A" is 0Vp-p.

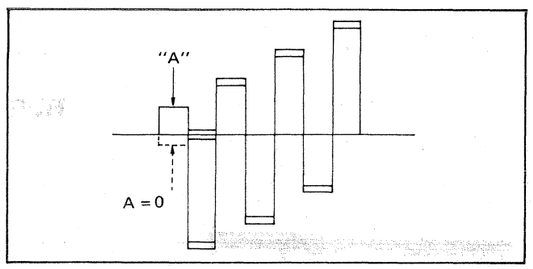


Fig. 6

PAL DELAY LINE ADJUSTMENT

1. Apply full field colour bar signal.
2. Connect an oscilloscope to **TPB6** and earth.
3. Set the following controls and switches to the position indicated.
   - Chroma control (R5804) . . . . . .fully clockwise
   - Contrast control (R5819) . . . . . .fully clockwise
   - Brightness control (R5824) . . . fully counterclockwise
   - Preset selector switch (SW5815) . . . . . OFF
   - Trap filter selector switch (SW5808) . . . . . ON
   - Mode selector switch (SW5810) . . . . . AUTO
4. Adjust R614 (Delay Line) so that the signal level "A" becomes 0 as shown in Fig. 7.
5. Adjust L607 so that the 1st. horizontal line signal and 2nd. horizontal line signal is matched.

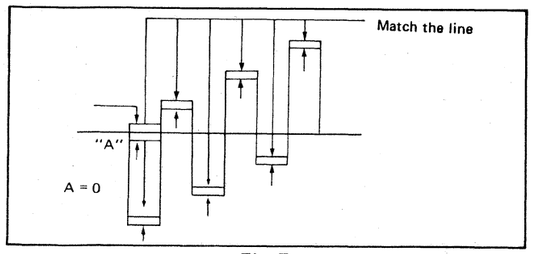


Fig. 7

SUB CHROMA ADJUSTMENT

1. Apply a full field colour bar signal.
2. Connect an oscilloscope to **TPB14** and earth.
3. Set the following switches to the position indicated.
   - Trap filter selector switch (SW5808) . . . . . ON
   - Mode selector switch (SW5810) . . . . . AUTO
   - Preset selector switch (SW5815) . . . . . OFF
   - H-Delay switch ⊓ (SW5812) . . . . . OFF
   - V-Delay switch ⊟ (SW5813) . . . . . OFF
4. Adjust Chroma control (R5804) so that the waveform **TPB14** becomes as shown in Fig. 8.

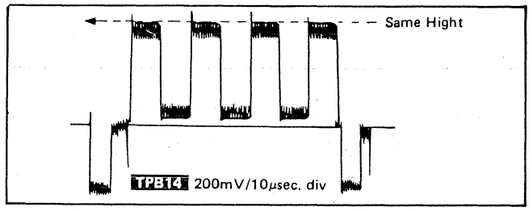


Fig. 8

5. Disconnect an oscilloscope from **TPB14** and connect an oscilloscope to **TPB6**.
6. Adjust R619 (Sub. Chroma) so that the **TPB6** becomes 1.0Vp-p ± 0.05Vp-p as shown in Fig. 9.

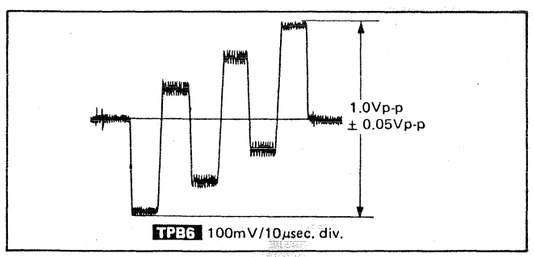
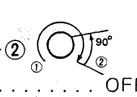


Fig. 9

COLOUR GAIN AND PHASE ADJUSTMENT

1. Apply a full field colour bar signal.
2. Connect an oscilloscope to **TPB6** and earth.
3. Set the following control and switch to the position indicated.
   - Chroma control (R5804). . . Step ①→② 
   - Preset selector switch (SW5815) . . . . . OFF
4. Set Mode selector switch (SW5810) to the AUTO position.

5. Record the waveform **TPB6**.
6. Set Mode selector switch (SW5810) to the COLOUR position.
7. Adjust R621 (Chroma Gain) so that the waveform at this point of time becomew equal to that recorded in Step 5 as shown in Fig. 10.
8. Set Mode selector switch (SW5810) to the AUTO position.
9. Confirm that the waveform at this point of time is equal to the waveform recorded in Step 7.

NOTE: In case a difference in the waveform is observed, repeat the adjustment described in Step 5 through 9.

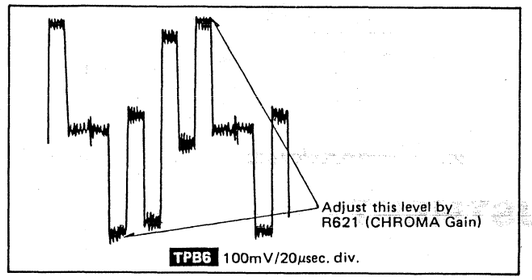


Fig. 10

10. Disconnect an oscilloscope from **TPB6** and connect an oscilloscope to **TPB5**.
11. Turn the Mode selector switch (SW5810) to AUTO and COLOUR several times. Confirm that there is no difference in waveform at each position. Also, while watching the display on the screen, confirm that there is no change in hue and saturation.

SUB COLOUR ADJUSTMENT

1. Apply full field colour bar signal.
2. Connect an oscilloscope to **TPB14** and earth.
3. Set the following switches to the position indicated.
   - Trap filter selector switch (SW5808) . . . . . ON
   - Mode selector switch (SW5810) . . . . . AUTO
   - Preset selector switch (SW5815) . . . . . OFF
   - H-Delay switch ⊓ (SW5812) . . . . . OFF
   - V-Delay switch ⊟ (SW5813) . . . . . OFF
4. Adjust Chroma control (R5804) so that the waveform **TPB14** becomes as shown in Fig. 11.

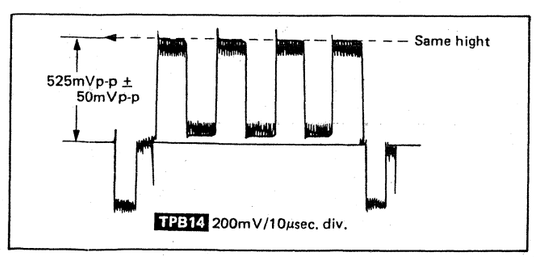


Fig. 11

5. Set Chroma control (R5804) to fully clockwise position.
6. Adjust R5106 (Sub. Colour) so that the waveform **TPB14** becomes 1.05 ± 0.05V as shown in Fig. 12.

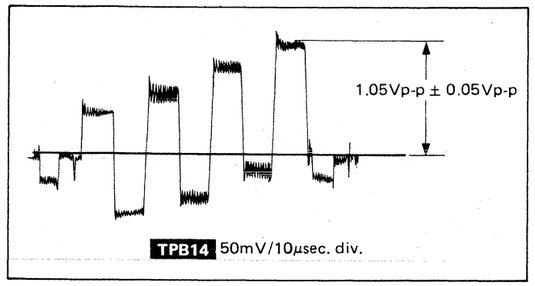


Fig. 12

R.G.B. BALANCE ADJUSTMENT

1. Apply a full field colour bar signal.
2. Connect an oscilloscope to **TPB12** and earth.
3. Set the following switches to the position indicated.
   - Trap filter selector switch (SW5808) . . . . . ON
   - Mode selector switch (SW5810) . . . . . MONO
   - H-Delay switch ⊓ (SW5812) . . . . . OFF
   - V-Delay switch ⊟ (SW5813) . . . . . OFF
4. Measure and record the amplitude of the waveform **TPB12** as shown in Fig. 13.

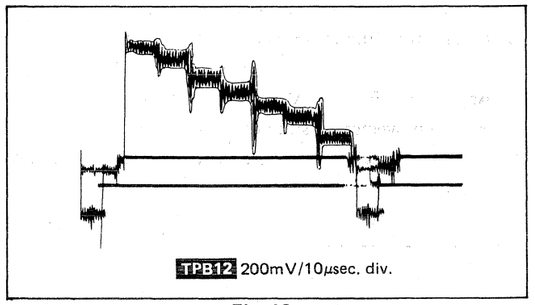


Fig. 13

5. Disconnect an oscilloscope from **TPB12** and connect an oscilloscope to **TPB13**.
6. Adjust R5115 (G-Level) so that the amplitude of **TPB13** becomes equal to the amplitude **TPB12** recorded in Step 4.
7. Disconnect an oscilloscope from **TPB13** and connect and oscilloscope to **TPB14**.
8. Adjust R5116 (B-Level) so that the amplitude of **TPB14** becomes equal to the amplitude **TPB12** recorded in Step 4.
9. Confirm that the difference in amplitude among **TPB12** **TPB13** and **TPB14** is within the range of ± 0.02Vp-p.

NOTE: If the difference in amplitude is more than ± 0.02Vp-p repeat the adjustments of Step 4 through 9.

H/V DELAY WHITE BALANCE ADJUSTMENT

1. Apply a full field colour bar signal.
2. Connect an oscilloscope to **TPB12** and earth.
3. Set the following switches to the position indicated.
   Trap filter selector switch (SW5808) . . . . . ON
   Mode selector switch (SW5810) . . . . . MONO
   H-Delay switch ◫ (SW5812) . . . . . ON
4. Adjust R5143 (R-Pulse Level) so that the waveform **TPB12** becomes as shown in Fig. 14.
5. Disconnect an oscilloscope from **TPB12** and connect an oscilloscope to **TPB13**.
6. Adjust R5142 (G-Pulse Level) so that the waveform **TPB13** becomes as shown in Fig. 14.
7. Disconnect an oscilloscope from **TPB13** and connect an oscilloscope to **TPB14**.
8. Adjust R5144 (B-Pulse Level) so that the waveform **TPB14** becomes as shown in Fig. 14.

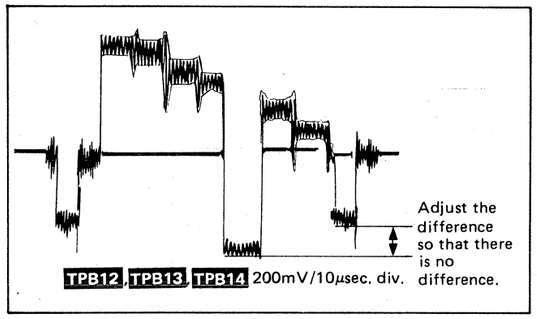


Fig. 14

9. While watching the display on the screen, confirm that there is no significant change in the white balance on the entire screen when the H-Delay switch ◫ (SW5812) is turn ON and OFF several times.

IC GAIN ADJUSTMENT

1. Apply a window pattern signal.
2. Connect a CH1 of oscilloscope to **TPB13** and earth.
3. Connect a CH2 of oscilloscope to **TPB12** and earth.
4. Set the following controls switches to the position indicated:
   Contrast control (R5819) . . . . . Centre
   Preset selector switch (SW5815) . . . . . OFF
   Brightness control (R5824) . . . . . Centre
   H-Delay switch ◫ (SW5812) . . . . . OFF
   V-Delay switch ⊟ (SW5813) . . . . . OFF
5. Confirm that amplitude of waveform **TPB12**, **TPB13** and **TPB14** is the same.
6. Disconnect an oscilloscope from **TPB12** and **TPB13**, and connect an oscilloscope to **TP47G** and **TP47R**.
7. Adjust R5542 (R. IC BIAS) so that amplitude of waveform **TP47G** and **TP47R** is the same (± 10mVp-p).
8. Set Contrast control (R5819) to fully clockwise position.

9. Adjust R5577 (R. IC GAIN) so that amplitude of waveform **TP47G** and **TP47R** is the same (± 10mVp-p).
10. Set Contrast control (R5819) to centre position, and then confirm that amplutide of waveform **TP47G** and **TP47R** is the same (± 10mVp-p).
11. Set Contrast control (R5819) to fully counterclockwise position, and then confirm that amplitude of waveform **TP47G** and **TP47R** is the same.
12. If the same amplitude cannot be obtained in step 10 or step 11, than repeat step 7 through 11.
13. Connect a CH1 of oscilloscope to **TP47B** and earth.
14. Set Contrast control (R5819) to centre position.
15. Adjust R5546 (B. IC BIAS) so that amplitude of waveform **TP47G** and **TP47B** is the same (± 10mVp-p).
16. Set Contrast control (R5819) to fully clockwise position.
17. Adjust R5579 (B. IC GAIN) so that amplitude of waveform **TP47G** and **TP47B** is the same (± 10mVp-p).
18. Set Contrast control (R5819) to centre position, and then confirm that amplitude of waveform **TP47G** and **TP47B** is the same (± 10mVp-p).
19. Set Contrast control (R5819) to fully counterclockwise position, and then confirm that amplitude of waveform **TP47G** and **TP47B** is the same (± 20mV).
20. If the same amplitude cannot be obtained in step 18 or step 19, then repeat step 14 through 19.

PBPR LEVEL ADJUSTMENT

1. Connect the Y loop through output to PB input terminal and PB loop through output to PR input terminal as shown in Fig. 15.

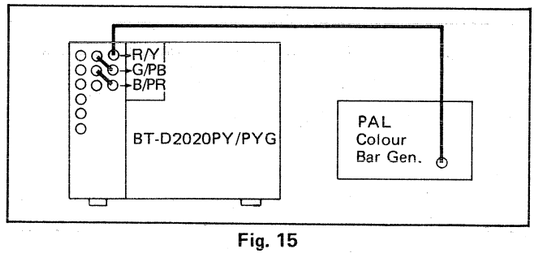


Fig. 15

2. Set the Input selector switch (SW5801) to RGB (YPBPR) position.
3. Connect the oscilloscope to Y input terminal and set the output signal levels of PAL colour bar signal generator become "A" = 0.525 ± 0.025Vp-p and "B" = 0.300 ± 0.015Vp-p as shown in Fig. 16.
4. Disconnect the oscilloscope from Y input terminal and connect its to **TPPR**.
5. Adjust R5256 (PR Level) so that the signal level "A" becomes 2.00Vp-p ± 0.10Vp-p.
6. Disconnect the oscilloscope from **TPPR** and connect its **TPPB**.
7. Adjust R5265 (PB Level) so that the signal level "A" becomes 1.82Vp-p ± 0.10Vp-p.

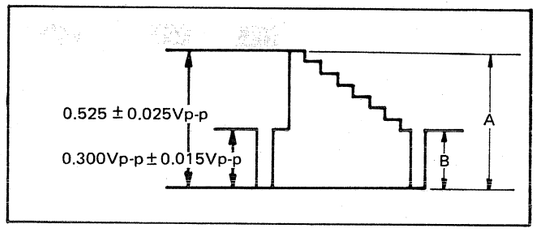


Fig. 16

COLOUR PURITY ADJUSTMENT

1. Operate the monitor over 30 minutes.
2. Fully degauss the picture tube by using an external degaussing coil.
3. Apply a cross hatch pattern signal and adjust roughly the static convergence magnets.
4. Apply a video signal of white full field.
5. Set R-Cut OFF switch (SW5802) and B-Cut OFF switch (SW5804) to ON position.
6. Loosen the deflection yoke clamp screw and move the deflection yoke as close to the purity magnets as possible.
7. Remove the silicone sealer and adjust the purity magnets so that a green field is obtained at the centre of the screen as shown in Fig. 17.

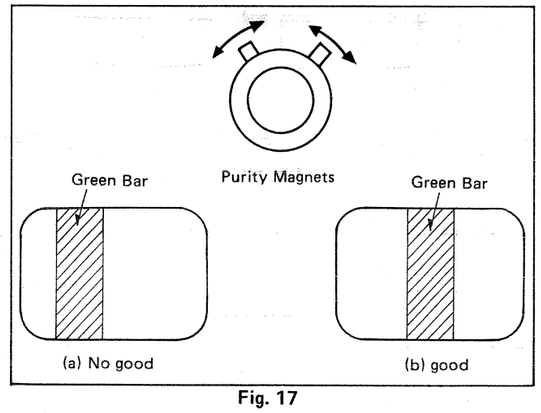


Fig. 17

8. Slowly position the deflection yoke and set it where a uniform green field is obtained.
9. Set R-Cut OFF switch (SW5802) and B-Cut OFF switch (SW5804) to OFF position.
10. Adjust roughly the Low Light controls (on the CRT P.W.B.) and make sure that a uniform white field is obtained.
11. Tighten the deflection yoke clamp screw.

CONVERGENCE ADJUSTMENT

1. Fully degauss the picture tube by using an external degaussing coil.
2. Input the cross hatch pattern of R and B with the signal generator.
3. Match the R and B at screen centre with four pole magnet. (Rotate the two ring magnets to move the red, blue dots circularly in the opposite derection.)
4. Input the cross hatch pattern of R.G.B. with the signal generator.
5. At the screen centre, match R and B to G with the six-pole magnet.
6. Fine tune the deflection yoke location to get good convergence on the whole screen.
7. If the convergence on the fringe area is bad, attach small magnets at the four corners of deflection yoke to improve the convergence.

Note: Caution for installing small magnets.
Keep more than 20 mm distance from anode cap.
Don't put them on top of one another.
Don't place them on warning or high voltage caution label.

8. After convergence adjustment, recheck purity. In case purity is no good, go back to step 7 the procedure for purity adjustment, and re-adjust the purity.
9. Repeat the above procedure several times to try the best purity and convergence.

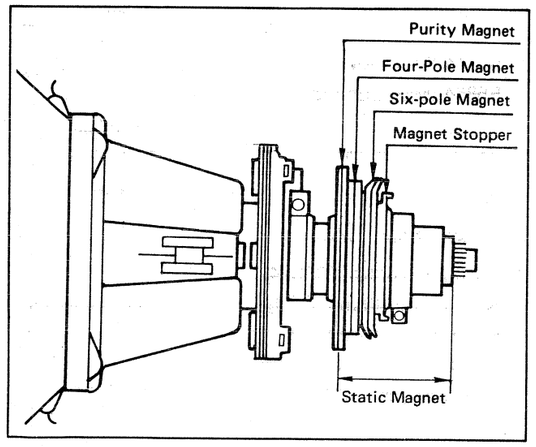


Fig. 18

HORIZONTAL HOLD AND VERTICAL HOLD ADJUSTMENT

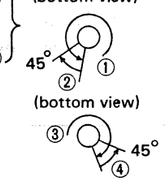
1. Apply a mono scope pattern signal.
2. Connect TPD5 and TP33 together using clip lead jumper.
3. Adjust R5631 (H-Hold) and set it at a point where horizontal movement is stopped.
4. Remove the clip lead jumper.
5. Remove the coupler A17 from A-Board and confirm that V-Hold runs.
6. Apply a frequency counter to TP82.
7. Adjust R5633 (V-Hold) and set it a point where indicates the 46.3 ± 0.5 Hz.
8. Insert the coupler A17 to A-Board and confirm that V-Hold does not run.

CRT CUT OFF ADJUSTMENT

1. Apply full field colour bar signal.
2. Set the following controls and switches to the position indicated.

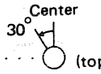
R-Drive (R5827)
B-Drive (R5835)
R-Screen (R5829) } (On the Front Panel) . . . . . Centre
G-Screen (R5833)
B-Screen (R5837)

R363 (R-Sub. Screen). . Step ①→②
R364 (G-Sub. Screen). . Centre
R365 (B-Sub. Screen). . Step ③→④



R5544 (Max. Brightness)
R5864 (Max. Contrast) . . . . . Centre

R5595 (R-Sub. Drive) . . . . . .



R5597 (B-Sub. Drive) . . . . . .

Brightness control (R5824) . . . . . Centre
Screen control (on the F.B.T.) . . . . . .fully clockwise
Set-up switch (SW5806) . . . . . ON
Preset selector switch (SW5815) . . . . . OFF
Service switch (S401) . . . . . .SERVICE

3. Slowly turn the Screen control (on the F.B.T.) counter-clockwise to the point where one of the R,G,B beams just appears on the picture tube.
4. Connect a test point (TPL1 , TPL2 or TPL3) corresponing to the colour emitted in Step 3 with the oscilloscope.
5. Adjust Brightnes control (R5824) and R5544 (Max. Brightness) becomes 108V as shown in Fig. 19.

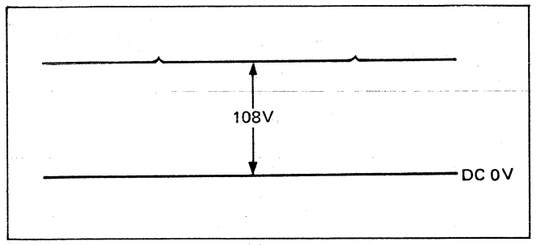


Fig. 19

6. Adjust Screen control (on the F.B.T.) so that the colour adjusted to 108V can shine faintly.
7. Slowly rotate the Semi-fixed control corresponding to the residual non-luminous colours clockwise until the line turns white. (from the bottom side).

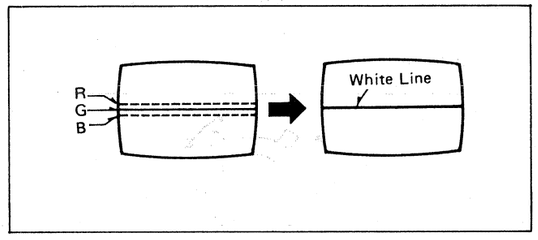
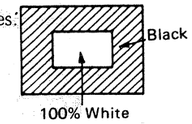


Fig. 20

8. Set the following switches to the position indicated.
   Set-up switch (SW5806) . . . . . OFF
   Service switch (S401) . . . . . .NORMAL
   Mode selector switch (SW5810) . . . . . .MONO
9. Confirm that no remarkable gop of white tone balance is found in a black-and-white signal.

WHITE BALANCE ADJUSTMENT

1. Operate the monitor over 30 minutes.
2. Apply a window pattern signal.
3. Set the following controls and switches to the position indicated.



   Contrast control (R5819) . . . . . .fully clockwise
   R5864 (Max. Contrast). . . . . Centre
   Brightness control (R5824) . . . . . .fully clockwise
   H-Delay switch ▯ (SW5812). . . . . OFF
   V-Delay switch ▭ (SW5813). . . . . OFF
4. Fully degauss the picture tube by using an external degaussing coil.
5. Secure the light receiving part of a TV-colour analyzer (MINOLTA) at the screen centre.
6. Turn Set-up switch (SW5806) to ON.
7. Adjust R5544 (Max. Brightness) to set the Max. Brightness to 1.5 ± 0.1 ft-L.
8. Adjust R363 (R. Sub. Screen) to the set x = 0.315 ± 0.01, y = 0.325 ± 0.01, Temperature of adjusted colour = 6500°K.
9. Apply a window pattern signal.
10. Adjust R5864 (Max. Contrast) to set the luminance to 78.0 ± 0.1 ft-L.
11. Adjust R5595 (R. Sub. Drive), R5597 (B. Sub. Drive) to set the x = 0.315 ± 0.01, y = 0.325 ± 0.01.

Note: Since the adjustments of Steps 7 through 11 have matual influences, be sure to repeat the follow-up adjustment.

H/V DELAY LOW LIGHT ADJUSTMENT

1. Operate the monitor over 30 miniutes.
2. Apply a Black signal.
3. Set the following control and switches to the position indicated.
   Contrast control (R5819) . . . . . .fully clockwise
   H-Delay switch ▯ (SW5812). . . . . OFF
   V-Delay switch ▭ (SW5813). . . . . OFF
   Preset selector switch (SW5815). . . . . OFF
4. Fully degauss the picture tube by using an external degaussing coil.
5. Secure the light receiving part of a TV colour analyzer (MINOLTA) at the screen centre and turn V-Delay switch ▭ (SW5813) to ON.
6. Adjust Brightness control (R5824) to set the luminance (Low Light) to 1.5 ±0.1ft-L.
7. Confirm that the x = 0.315 ±0.01, y = 0.336 ±0.01 and Y = 1.5 ±0.1ft-L.
8. Set V-Delay switch ▭ (SW5813) to ON position.
9. Adjust R5142 (G-Pulse Level), R5143 (R-Pulse Level), R5144 (B-Pulse Level) to set the x = 0.315 ± 0.01, y = 0.325 ±0.02.

VERTICAL LINEARITY ADJUSTMENT

1. Apply a CROSS-HATCH pattern signal.
2. Set Underscan switch ▣ (SW5811) to OFF position.
3. Adjust the R453 (Vertical Lineality Control) to each line is the same distance as shown in Fig. 21.

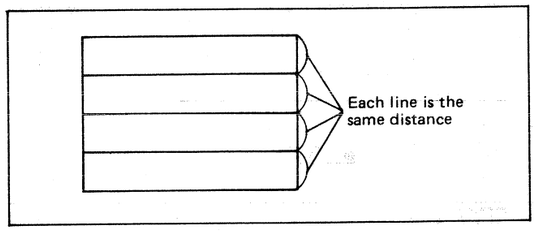


Fig. 21

PINCUSHION ADJUSTMENT

1. Apply a CROSS-HATCH pattern signal.
2. Set Underscan switch ▣ (SW5811) to ON position.
3. Adjust the R768 (Side Pincushion Control) so that the both of the side vertical lines are straight as shown in Fig. 22.

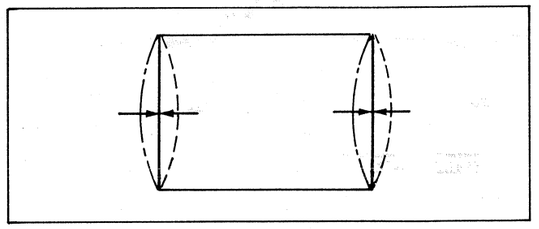


Fig. 22

V-DELAY POSITION ADJUSTMENT

1. Apply a full field colour bar signal.
2. Set the following switches to the position indicated.
   Underscan switch ▣ (SW5811). . . . . OFF
   V-Delay switch ▭ (SW5813) . . . . . ON
3. Adjust R5440 (V-Delay Position) so that the displayed on the screen becomes as shown in Fig. 23.

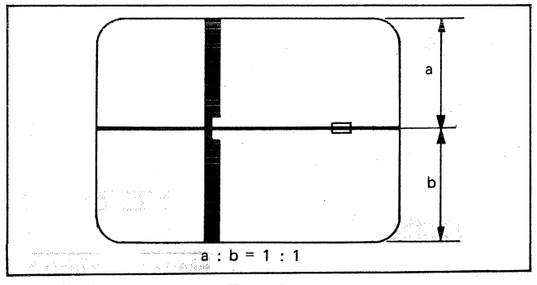


Fig. 23

A/B SPLIT POSITION ADJUSTMENT

1. Apply a full field colour bar signal to the LINE A IN terminal on the rear panel.
2. Apply a full field colour bar signal to the LINE B IN terminal on the rear panel.
3. Set the following switches to the position indicated.
   - H-Delay switch ◫ (SW5812) . . . . . OFF
   - V-Delay switch ⊟ (SW5813) . . . . . OFF
   - Underscan switch ⊡ (SW5811) . . . . . OFF
   - Sync. selector switch (SW5807) . . . . . INT
   - A/B Split selector switch (SW5805) . . . . . OFF
4. Set Sync. selector switch (SW5807) to the EXT. position.
5. Confirm that there is no difference in screen.
6. Set Sync. selector switch (SW5807) to the INT. position.
7. Set A/B split selector switch (SW5805) to ON position.
8. Adjust R5991 (A/B split position) so that the dividing line on the screen becomes a half and half as shown in Fig. 24.

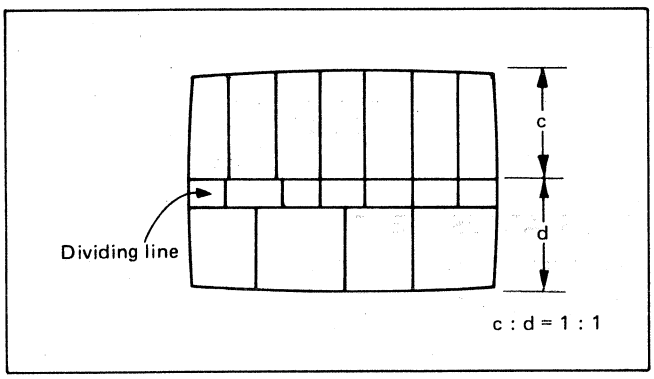


Fig. 24

S-VIDEO CHROMA ADJUSTMENT

1. Apply a full field colour bar signal to the LINE A IN terminal on the rear panel.
2. Apply a Y/C signal (full field colour bar) to the S-Video IN terminal on the rear panel.
3. Connect an oscilloscope to **TPB6** and **TPB11** (earth).
4. Set the following controls and switch to the position indicated.
   - Chroma control (R5804) . . . . . fully clockwise
   - Preset selector switch (SW5815) . . . . . OFF
   - Mode selector switch (SW5810) . . . . . COLOUR
   - 8P/S-Video, selector switch (SW5201) 75Ω
5. Set Input selector switch (SW5801) to LINE A position.
6. Measure and record the amplitude of the waveform **TPB6** as shown in Fig. 25.

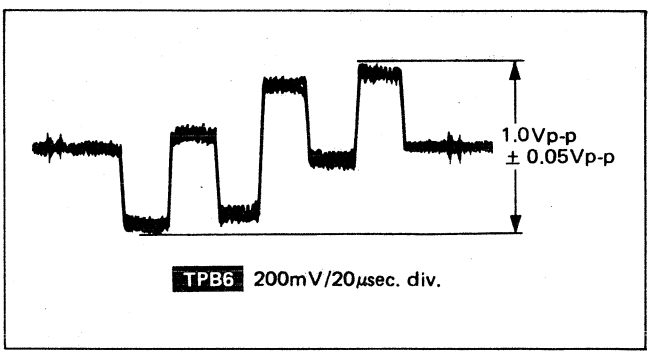


Fig. 25

7. Set Input selector switch (SW5801) to VTR position.
8. Adjust R5216 (S-Video Chroma) so that the amplitude of **TPB6** becomes equal to that of Step 6.
9. Turn Input selector switch (SW5801) to LINE A and VTR several times. Confirm that there is no difference in waveform at each position, also, while watching the display on the screen, confirm that there is no change in chroma.

YPBPR CHROMA ADJUSTMENT

1. Connect the oscilloscope to **TPB14**.
2. Set the YPBPR/RGB selector switch (SW5602) to YPBPR position and Chroma level 100/75 selector switch (SW5601) to 100 position.
3. Supply YPBPR component signal from signal generator or MII video tape recorder/player to YPBPR/RGB input.
4. Adjust R5282 (100 Chroma) so that the signal levels
5. Set the Chroma level 100/75 selector switch (SW5601) to 75 position.
6. Adjust R5285 (75 Chroma) so that the level (a) becomes as shown in Fig. 26 (B).

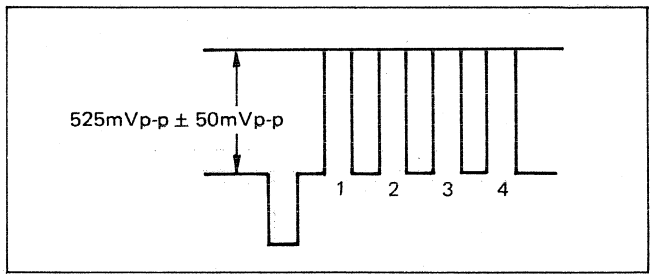


Fig. 26 (A)

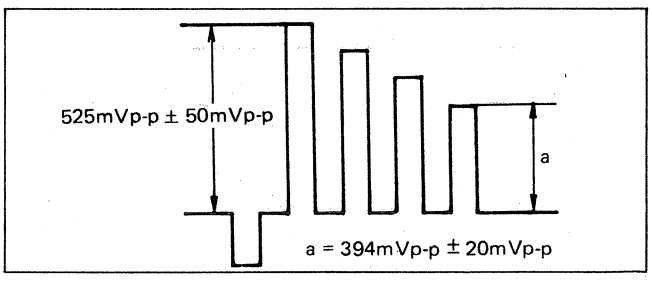
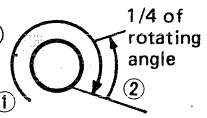


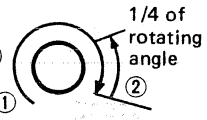
Fig. 26 (B)

PRESET ADJUSTMENT

1. Apply a SMPTE colour bar signal.
2. Fully degauss the picture tube by using an external degaussing coil.
3. Set Preset selector switch (SW5815) to ON position.

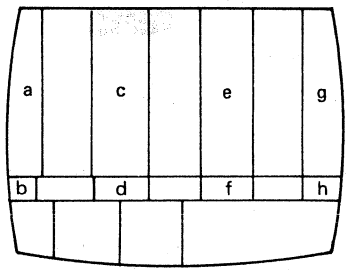
Preset Contrast (R5817) . . Step ①→② 

Preset Brightness (R5822). . . . . Centre

Preset Chroma (R5802) . . Setp ①→② 

Underscan switch ▣ (SW5811). . . . . OFF
Preset aperture (R5812) . . . . . fully counterclockwise
Blue signal only switch (SW5809) . . . . . ON
Trap filter selector switch (SW5808) . . . . . ON

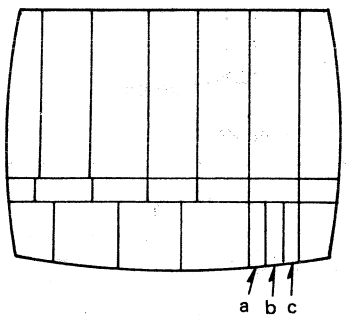
5. Adjust Preset chroma (R5802) so that the luminance at SMPTE colour bar pattern (on the displayed becomes Fig. 27.



Make adjustments to obtain the same level of brightness at each section from (a) through (h).

Fig. 27

6. Set Blue signal only switch (SW5809) to OFF position.
7. Adjust Brightness control (R5824) so that the brightness at SMAPTE colour bar pattern (on the displayed) becomes Fig. 28.



Only bar "C" can be observed dimly.

Fig. 28

8. Apply a window pattern signal.
9. Set the beam receiving part of TV-Colour analyzer (MINOLTA) to the window.
10. Adjust Preset contrast (R5817) to set the luminance to the 35 ft-L ± 1.0 ft-L.
11. Connect the positive lead of a DC ammeter to **TPD1** (+), and the negative lead to **TPD2** (−).
12. Confirm so that the DC ammeter is within a range of 250μA ± 65μA.
13. Apply a cross hatch pattern signal.
14. Connect an oscilloscope to **TPB9** and **TPB11** (earch).
15. Adjust Preset aperture (R5812) so that the **TPB9** becomes 0.85Vp-p ± 0.05Vp-p as shown in Fig. 29.

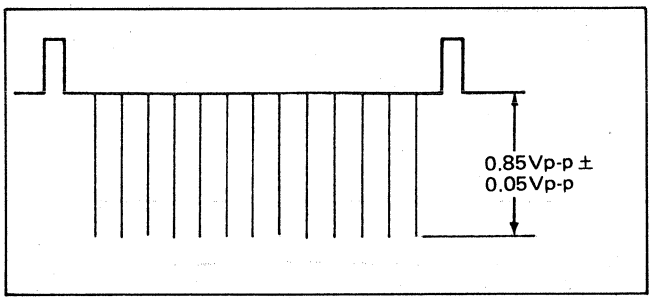
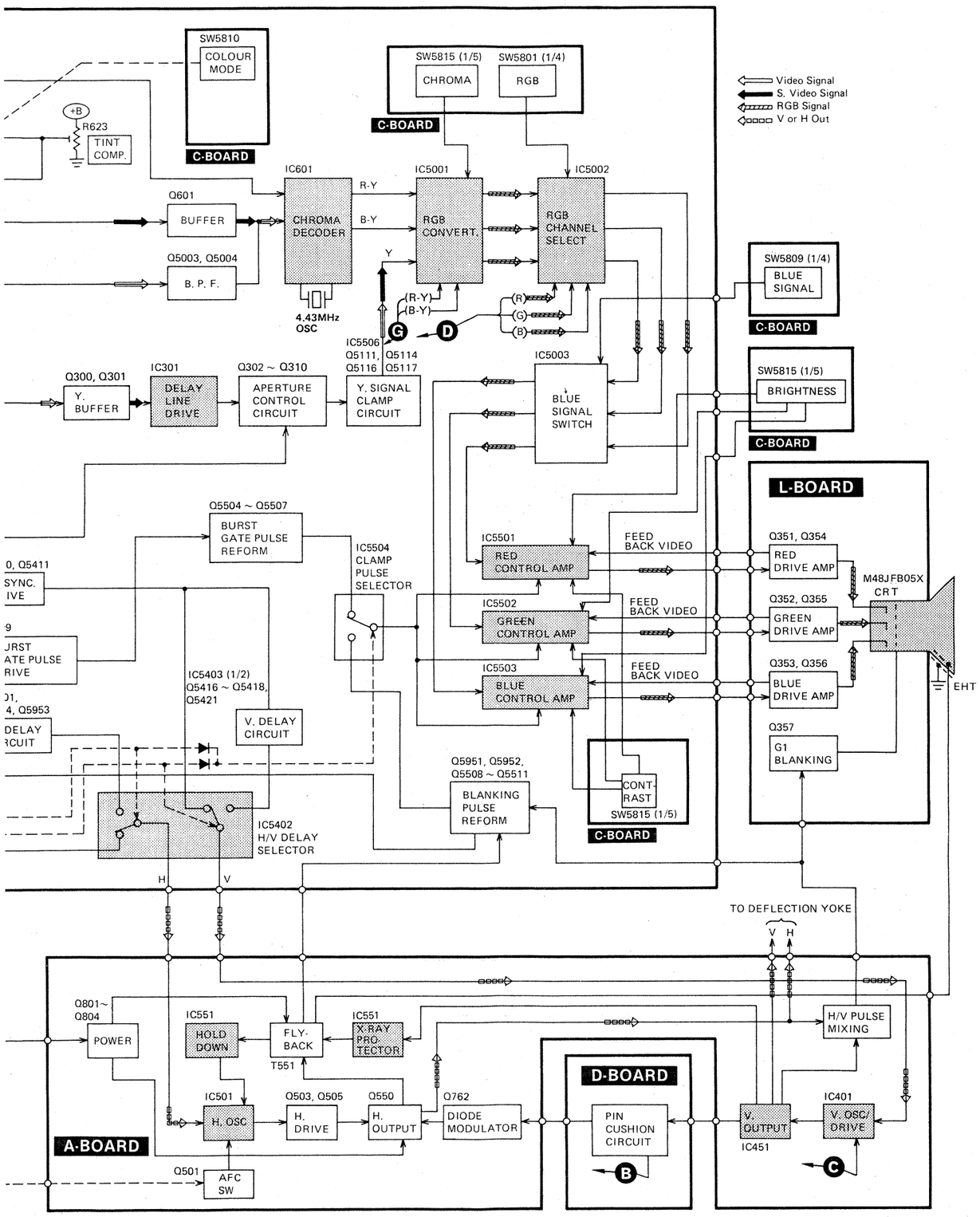


Fig. 29

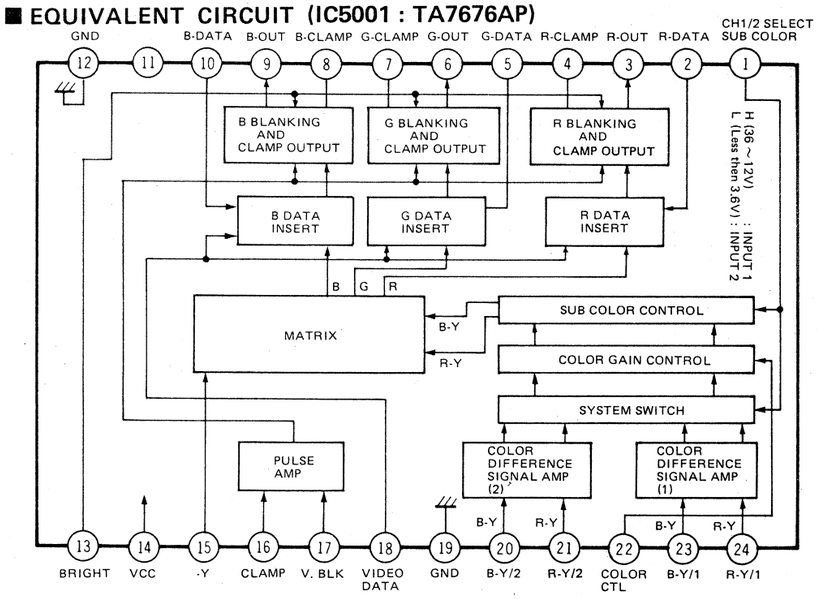
FOCUS ADJUSTMENT

Adjustment the Focus control (on the FBT) to obtain a sharpest and clearest picture.



EQUIVALENT CIRCUIT AND FUNCTION OF TERMINAL

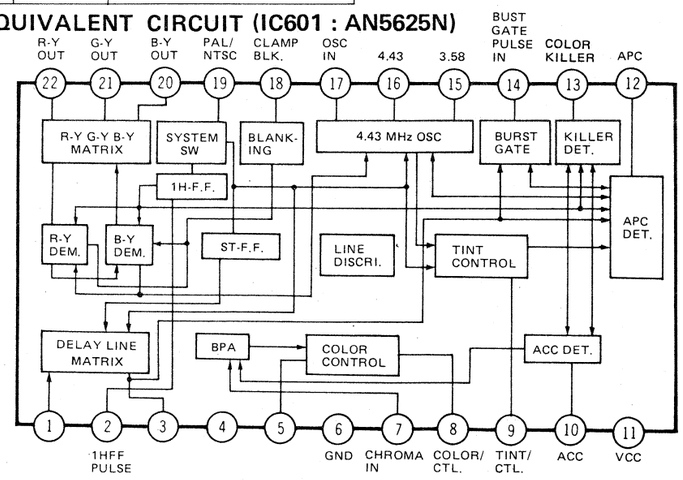
■ EQUIVALENT CIRCUIT (IC5001 : TA7676AP)



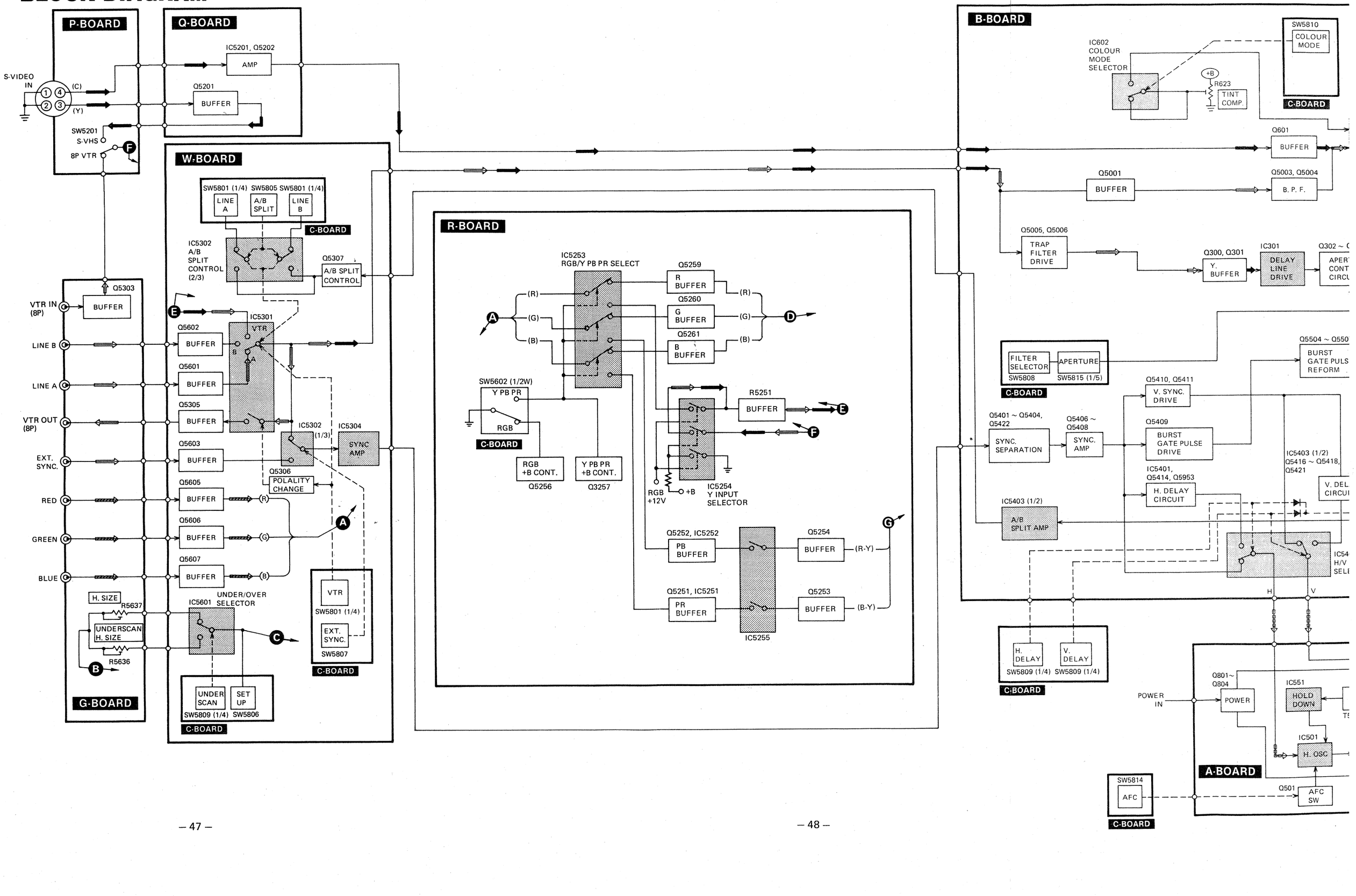
■ FUNCTION OF TERMINAL (IC5001 : TA7676AP)

Pin No.	Mark	Function
1	CH1/CH2 SELECT SUB COLOR	CH1/CH2 select pulse input terminal.
2	R-DATA	Not used.
3	R-OUT	R-signal output terminal.
4	R-CLAMP	R-signal clamping terminal.
5	G-DATA	Not used.
6	G-OUT	G-signal output terminal.
7	G-CLAMP	G-signal clamping terminal.
8	B-CLAMP	B-signal clamping terminal.
9	B-OUT	B-signal output terminal.
10	B-DATA	Not used.
11	NC	Not used.
12	GND	GND terminal.
13	BRIGHT	Not used.
14	VCC	Apply +12V.
15	–Y	–Y signal input terminal.
16	CLAMP	Blanking pulse input terminal.
17	V. BLK	Not used.
18	VIDEO/DATA	GND terminal.
19	GND	GND terminal.
20	B-Y/2	Difference signal (B-Y/2) input terminal.
21	R-Y/2	Difference signal (R-Y/2) input terminal.
22	COLOR/CTL	Color control voltage input terminal.
23	B-Y/1	Difference signal (B-Y/1) input terminal.
24	R-Y/1	Difference signal (R-Y/1) input terminal.

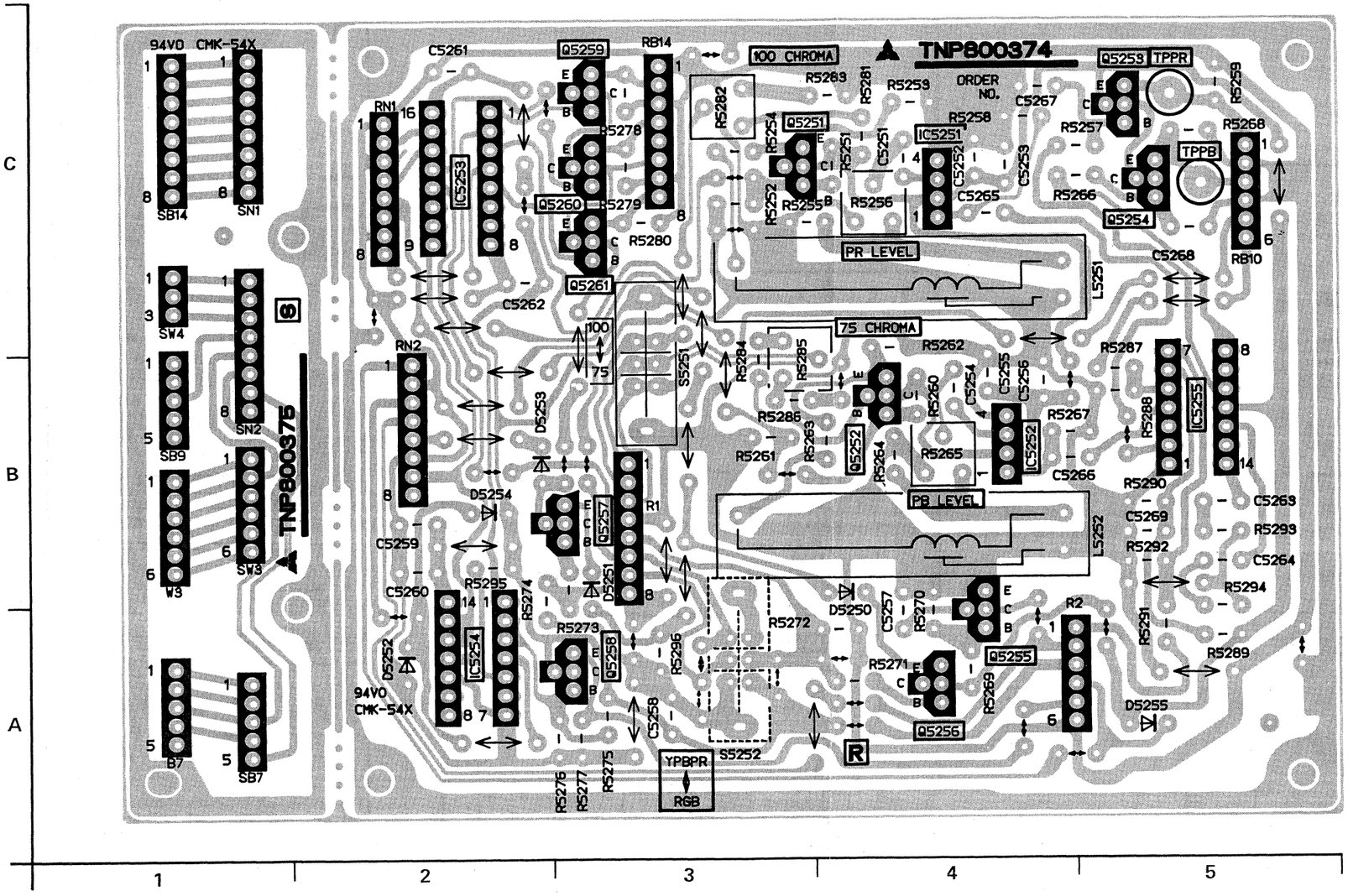
■ EQUIVALENT CIRCUIT (IC601 : AN5625N)



BLOCK DIAGRAM



R-BOARD : TNP800374BC
COLOUR DIFFERENCE CIRCUIT

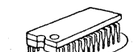


BOARD	
ansistor	
Q351	E-2
Q352	D-1
Q353	E-2
Q354	E-2
Q355	D-1
Q356	E-2
Q357	D-2
Q358	D-3
Q359	E-3
Q360	D-1
Q361	D-2
Q362	E-3
/P	
TPL1	D-2
TPL2	D-2
TPL3	D-2
/R	
R363	D-2
R364	D-1
R365	D-3

DRESS INFORMATION

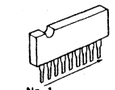
R-BOARD			
Integrated Circuit		Q5259	C-3
IC5251	C-4	Q5260	C-3
IC5253	C-2	Q5261	C-3
IC5254	A-2	Q5268	A-3
IC5288	B-5	**VR**	
Transistor		R5256	C-4
Q5251	C-3	R5265	B-4
Q5252	B-4	R5282	C-3
Q5253	C-5	R5285	B-3
Q5254	C-5	L5251	C-4
Q5255	A-4	**TP**	
Q5256	A-4	TPPR	C-5
Q5257	B-3	TPB	C-5

TERMINAL GUIDE OF IC'S, TRANSISTORS, AND DIODES

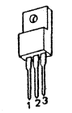


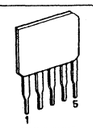
TA7676AP	24 Pin
AN5625N	22 Pin
AN5435	18 Pin
TC40538P	16 pin
TC4066BP	14 Pin
AN5860	14 Pin
M51392P	14 Pin


AN5521

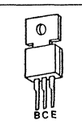


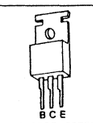
AN5790N	12 Pin
TVSBA236B	9 Pin
AN614	7 Pin
AN608P	4 Pin


M5F7812


TNH11303

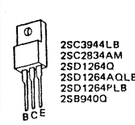

2SD636R
2SD637R
2SB641R
2SB642Q
UN1212

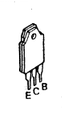

2SD638R

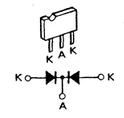

2SC1683Q, 2SB750

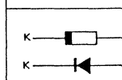

2SC7846Q
2SA900R
2SC3503LB


2SC1383NC
2SC1573ANC
2SC1215S

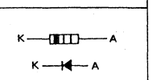

2SC3944LB
2SC2834AM
2SD1264Q
2SD1264AQLB
2SD1264PLB
2SB940Q

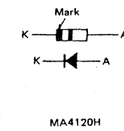

2SD1732RL


MA154WA


TVS11DQ03C


TVSRU1, RH4F
TVSRU2AM, TVSEM1Z
TVSEU1A, TVSES1Z
TVSES1, TVSEH1Z
RF1A, TVSRD20FB1


MA4030M
MA4030


MA4120H

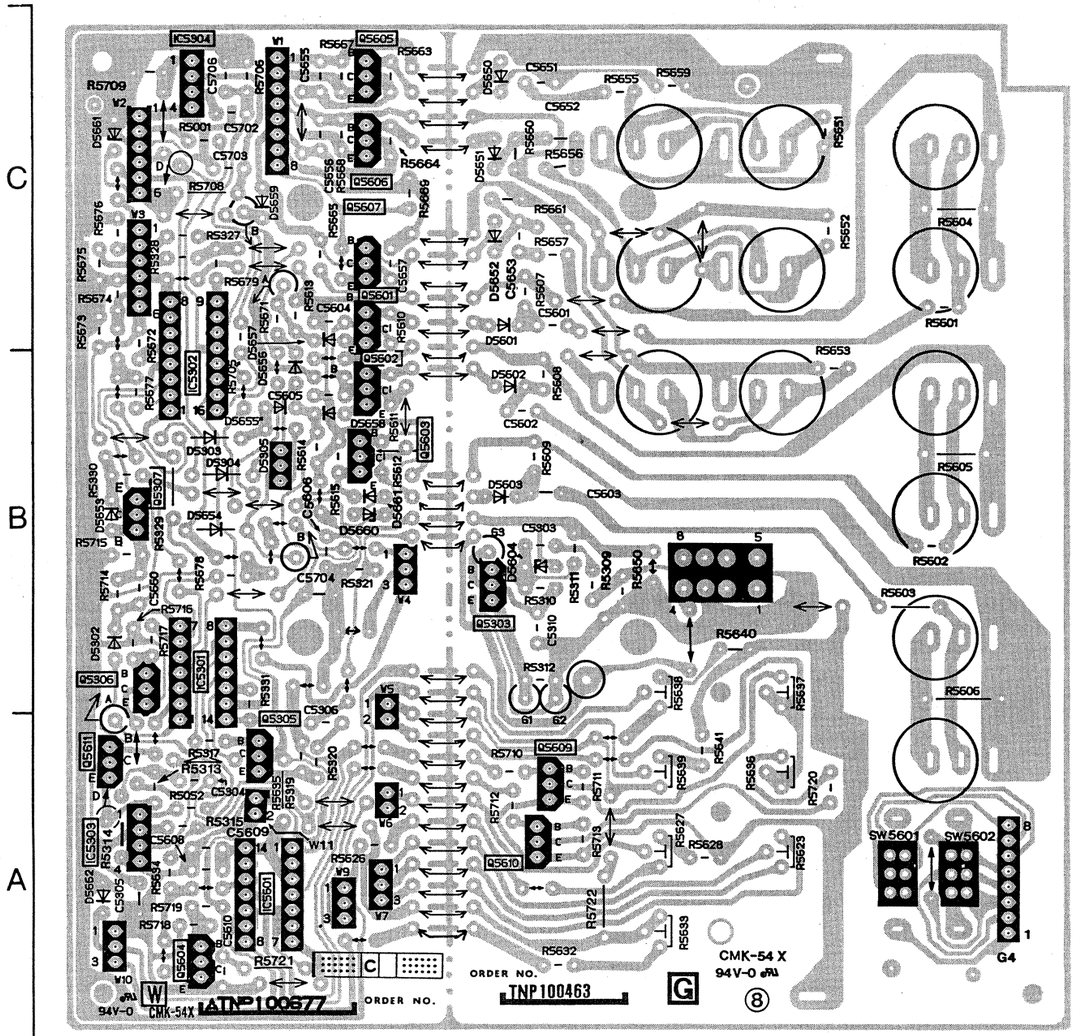

MA165, MA27WB
MA166, MA150
MA161, MA162
MA27, OA90G
OA90AM, OA90AG
MA182, MA150
MA170, MA154WA


LN31CPHLUGS


MA4180
MA4200
MA4091M
MA4043M
MA4068M
MA4082M

W-BOARD : TNP100677BB
SIGNAL OUT CIRCUIT

G-BOARD : TNP100463BB
REAR TERMINAL CIRCUIT



W-BOARD	
Integrated Circuit	
IC5301	B-1
IC5302	C-1
IC5303	A-1
IC5304	C-1
IC5601	A-1
Transistor	
Q5305	A-1
Q5306	B-1
Q5307	B-1
Q5601	C-2
Q5602	B-2
Q5603	B-2
Q5604	A-1
Q5605	C-2
Q5606	C-2
Q5607	C-2
Q5611	A-1

ADDRESS INFORMATION

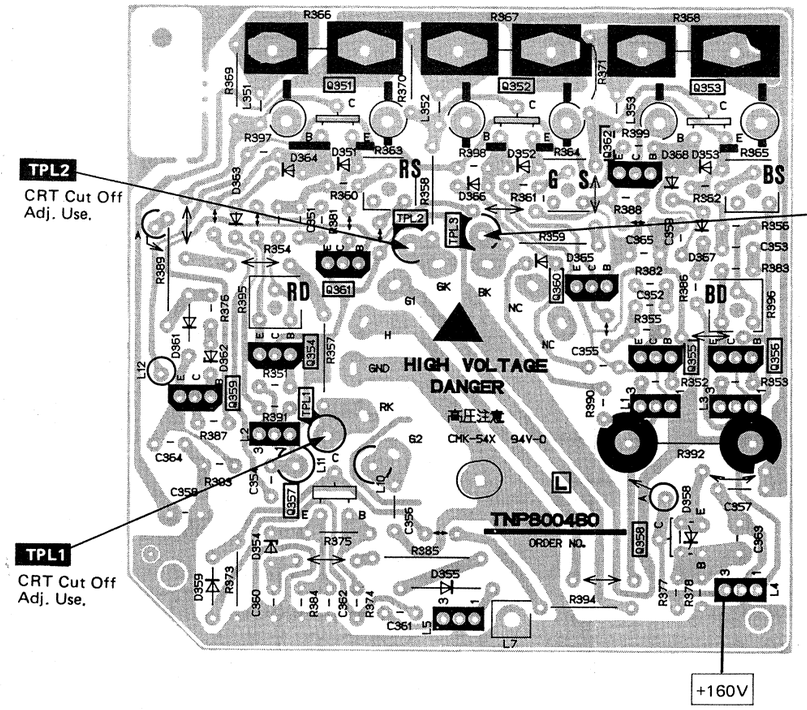
G-BOARD	
Transistor	
Q5303	B-2
Q5609	A-2
Q5610	A-2
VR	
R5623	A-3
R5627	A-3
R5633	A-3
R5636	A-3
R5637	B-3
R5638	B-3
R5639	A-3

ADDRESS INFORMATION

D-BOARD	
Integrated Circuit	
IC761	A-3
Transistor	
Q580	B-1
Q581	B-2
Q751	B-2
Q755	A-3
Q756	B-3
Q757	B-3
Q758	A-3
VR	
R768	B-2
TP	
TPM1	B-2
TPM2	A-3

ADDRESS INFORMATION

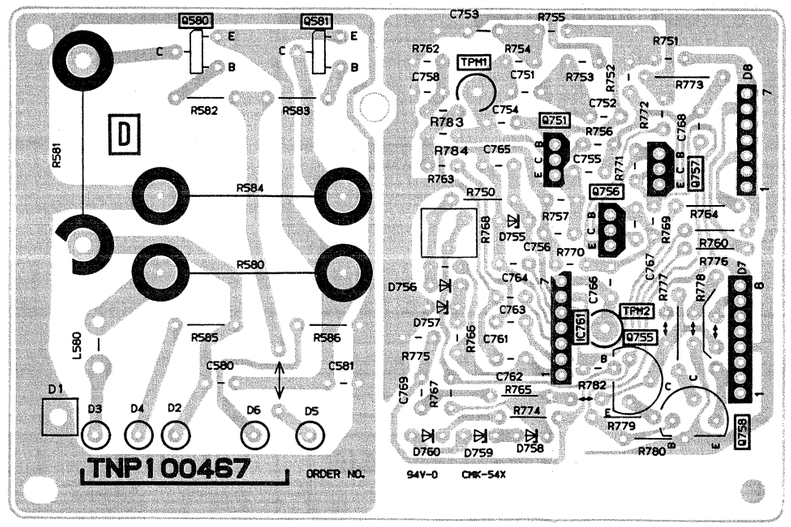
L-BOARD : TNP800460ZA
CRT DRIVE CIRCUIT



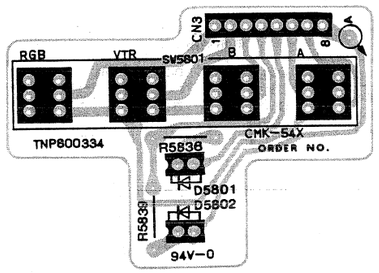
L-BOARD	
Transistor	
Q351	E-2
Q352	D-1
Q353	E-2
Q354	E-2
Q355	D-1
Q356	E-2
Q357	D-2
Q358	D-3
Q359	E-3
Q360	D-1
Q361	D-2
Q362	E-3
TP	
TPL1	D-2
TPL2	D-2
TPL3	D-2
VR	
R363	D-2
R364	D-1
R365	D-3

ADDRESS INFORMATION

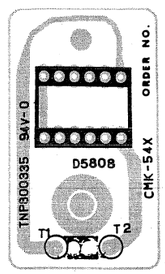
D-BOARD : TNP100467ZA
PINCUSHION CORRECTOR CIRCUIT



TNP800334ZA
INPUT SELECTOR CIRCUIT



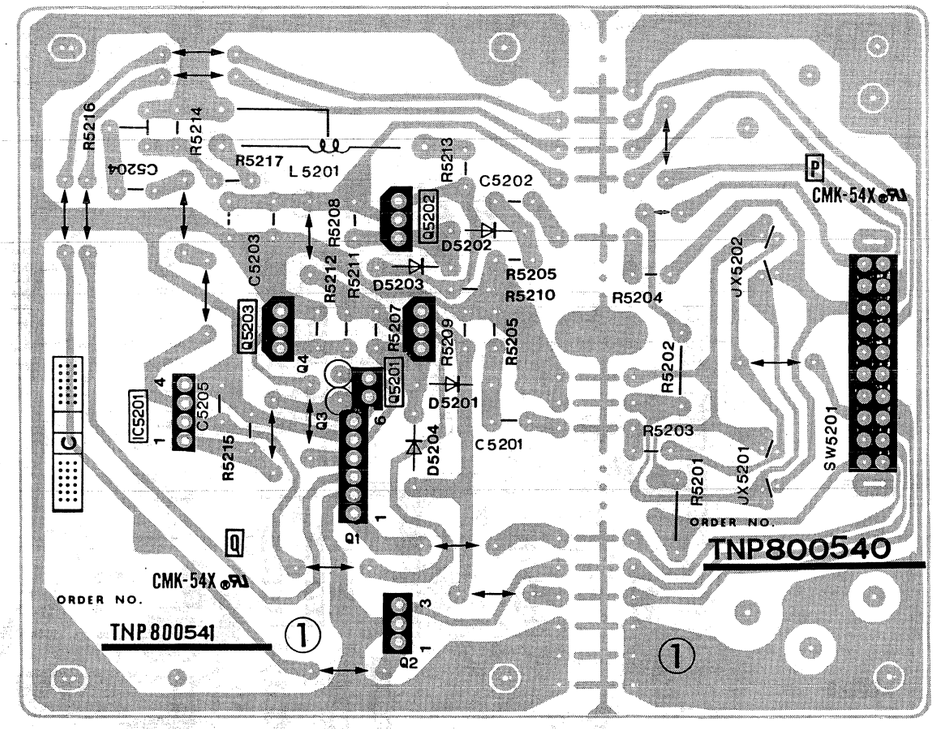
T-BOARD : TNP800335ZA
TALLEY LED CIRCUIT



Q-BOARD	
Integrated Circuit	
IC5201	D-5
Transistor	
Q5201 Q5202 Q5203	D-6 D-6 D-6
VR	
R5216 L5201	E-5 E-6

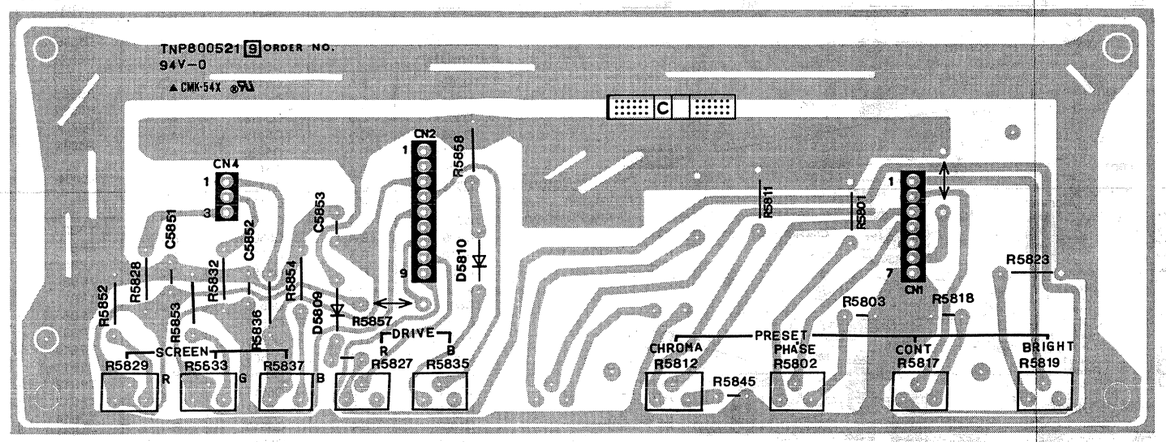
ADDRESS INFORMATION

Q-BOARD : TNP800541ZA
S-VIDEO SIGNAL OUT
CIRCUIT

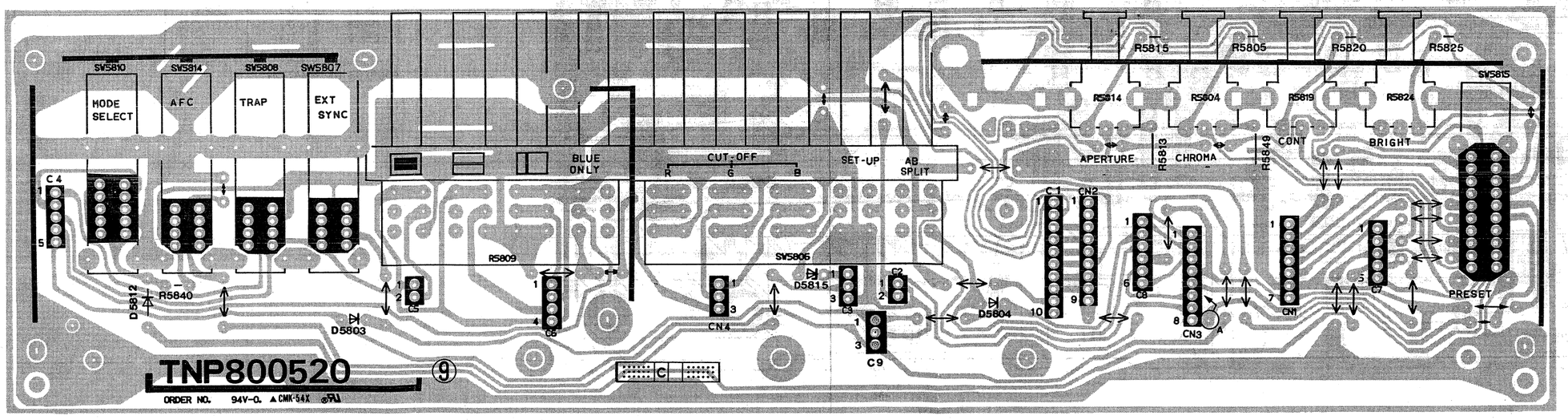


P-BOARD : TNP800540
S-VIDEO TERMINAL CIRCUIT

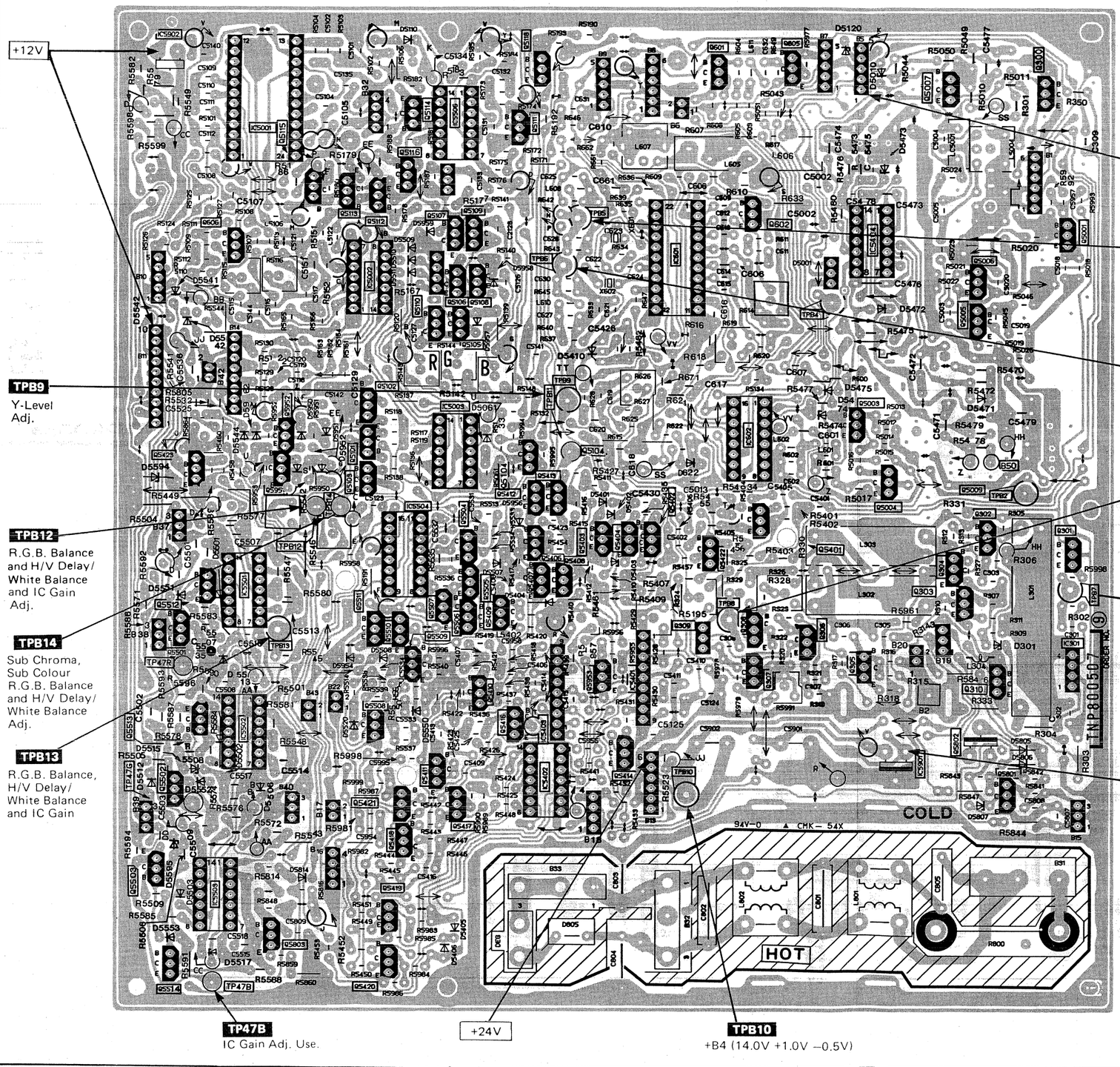
TNP800521ZA
PRESET VR CIRCUIT



C-BOARD : TNP800520ZA
OPERATION CIRCUIT



B-BOARD : TNP800507ZA
SIGNAL DISPOSITION CIRCUIT



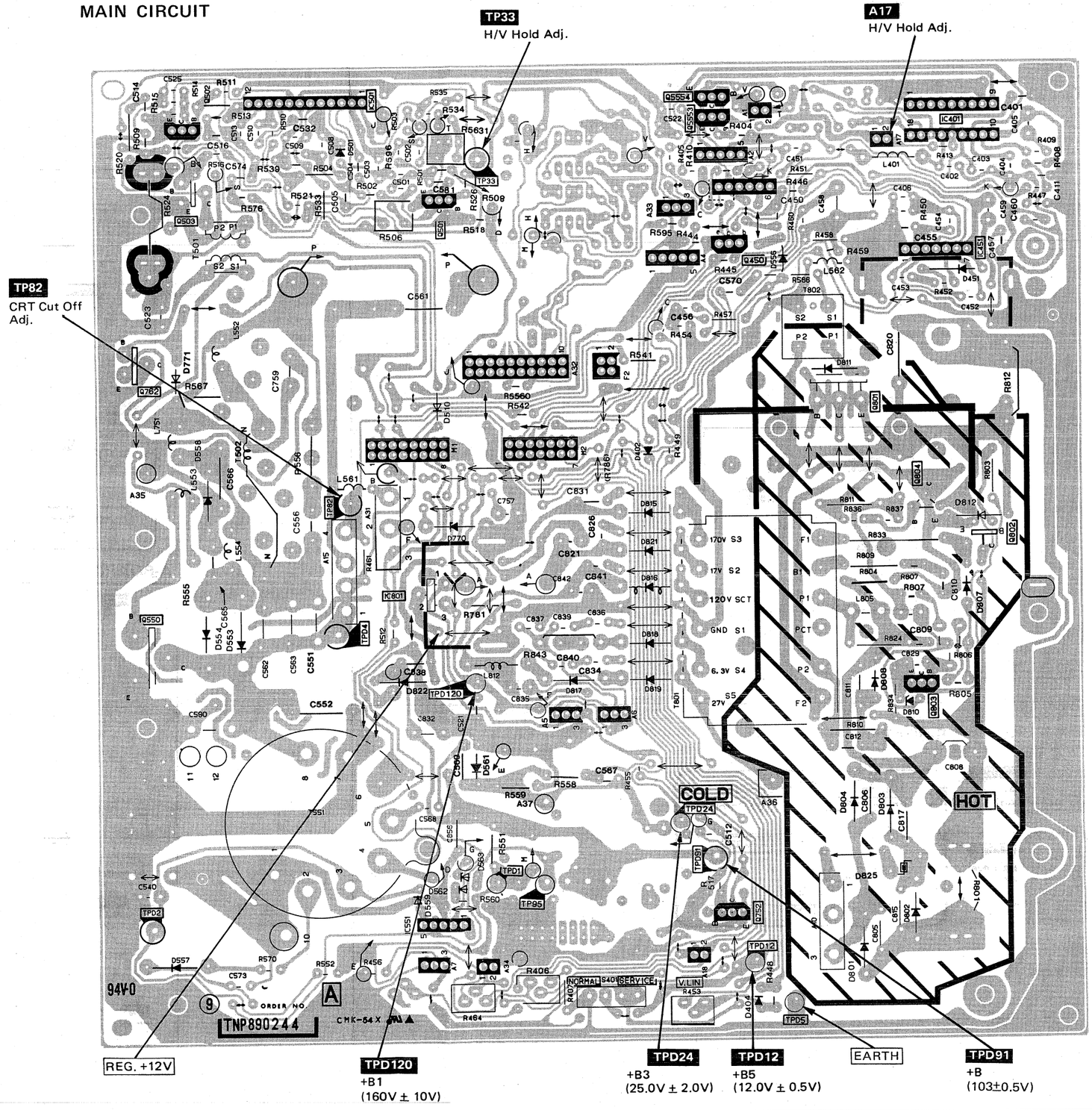
B-BOARD

Integrated Circuit		Q5110	D-2	VR	
IC301	B-5	Q5111	E-3	R324	C-4
IC601	D-3	Q5112	D-2	R326	C-4
IC602	C-4	Q5113	D-2	R329	C-4
IC5001	E-2	Q5114	E-2	R614	D-1
IC5002	D-2	Q5115	D-2	R619	D-4
IC5003	C-2	Q5116	D-2	R621	C-3
IC5401	B-3	Q5118	E-3	R626	C-3
IC5402	B-3	Q5401	C-4	R5106	E-2
IC5403	B-3	Q5402	C-3	R5115	D-1
IC5404	D-4	Q5403	C-3	R5116	D-2
IC5501	C-2	Q5404	C-3	R5142	C-3
IC5502	B-1	Q5406	C-3	R5143	D-2
IC5503	A-1	Q5407	C-3	R5144	D-2
IC5504	C-2	Q5408	C-3	R5429	B-3
IC5506	E-2	Q5409	B-3	R5440	B-3
IC5901	B-4	Q5410	B-3	R5542	C-2
5902	E-1	Q5411	B-2	R5544	D-1
Transistor		Q5412	C-3	R5546	C-2
Q300	E-5	Q5413	C-3	R5577	C-1
Q301	C-5	Q5414	B-3	R5578	E-1
Q302	C-5	Q5416	B-3	R5595	D-1
Q303	C-5	Q5417	B-2	R5597	D-1
Q304	C-5	Q5418	A-2	R5864	C-1
Q305	B-4	Q5419	A-2	R5991	B-4
Q306	B-4	Q5420	A-2	L5004	E-5
Q307	B-4	Q5421	B-2	TP	
Q308	B-4	Q5422	C-4	TPB2	C-5
Q309	B-4	Q5423	C-1	TPB4	D-4
Q310	B-5	Q5501	B-1	TPB5	D-3
Q601	E-4	Q5502	B-1	TPB6	D-3
Q602	D-4	Q5503	A-1	TPB7	C-5
Q605	E-4	Q5504	C-2	TPB8	B-4
Q606	D-1	Q5505	C-3	TPB9	C-3
Q5001	D-5	Q5506	B-2	TPB10	B-3
Q5003	C-4	Q5507	B-2	TPB11	C-3
Q5004	C-4	Q5508	B-2	TPB12	C-2
Q5005	D-5	Q5509	B-2	TPB13	B-2
Q5006	D-5	Q5510	B-2	TPB14	C-2
Q5007	E-4	Q5511	B-2	TPB23	E-5
Q5101	C-2	Q5512	C-1	TP47B	A-1
Q5102	C-2	Q5513	B-1	TP47G	B-1
Q5103	C-2	Q5514	A-1	TP47R	B-1
Q5104	C-3	Q5801	B-5		
Q5105	D-2	Q5802	B-5		
Q5106	D-2	Q5803	A-2		
Q5107	D-2	Q5951	C-2		
Q5108	D-3	Q5952	C-2		
Q5109	D-3	Q5953	B-3		

ADDRESS INFORMATION

CIRCUIT BOARD

A-BOARD : TNP890244AB
MAIN CIRCUIT

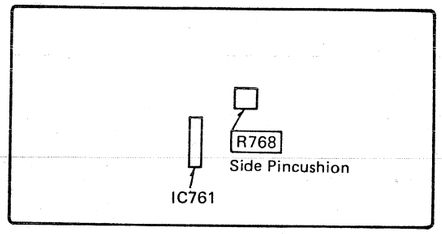


A-BOARD	
Integrated Circuit	
IC401	E-1
IC451	D-1
IC501	E-4
IC551	A-4
IC801	C-4
Transistor	
Q450	D-2
Q501	E-4
Q503	E-5
Q505	E-5
Q550	C-5
Q752	A-2
Q762	D-5
Q801	D-2
Q802	C-1
Q803	B-2
Q804	C-2
Q5553	E-3
Q5554	E-3
VR	
R453	A-3
R506	E-4
R806	C-1
R5631	E-4
TP	
TPD1	B-3
TPD2	A-5
TPD4	C-4
TPD5	A-2
TPD12	A-2
TPD24	B-3
TPD91	B-3
TPD120	B-4
TP33	E-4
TP82	C-4
TP95	B-3

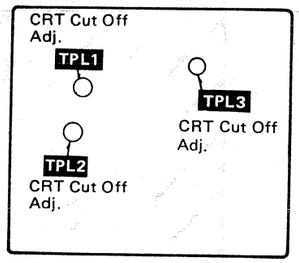
ADDRESS INFORMATION

LOCATION OF TEST POINTS AND CONTROLS

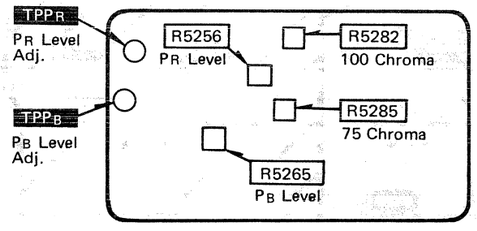
D-BOARD



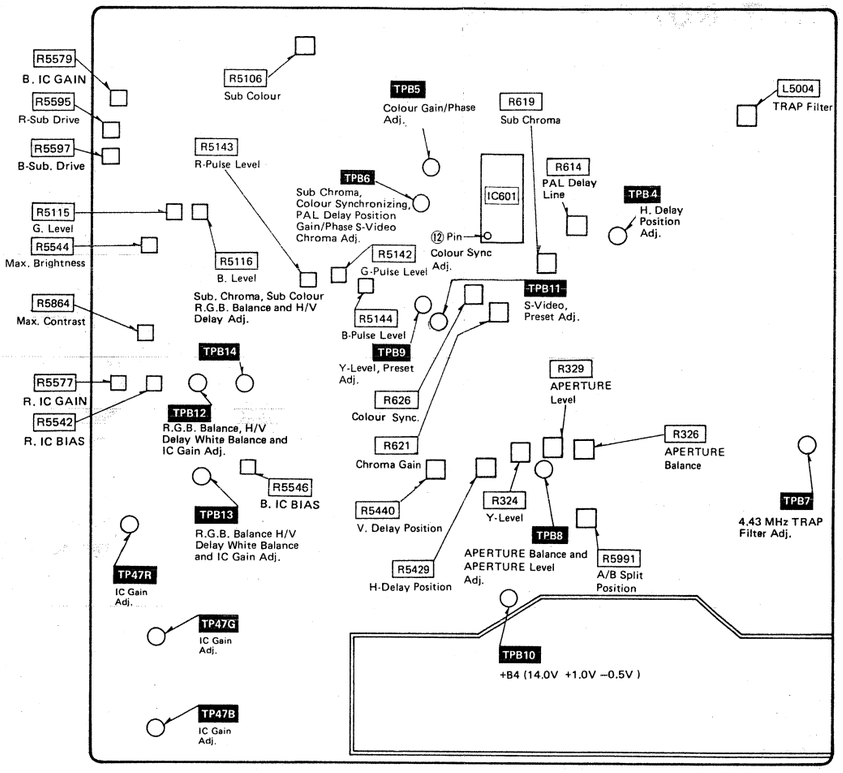
L-BOARD



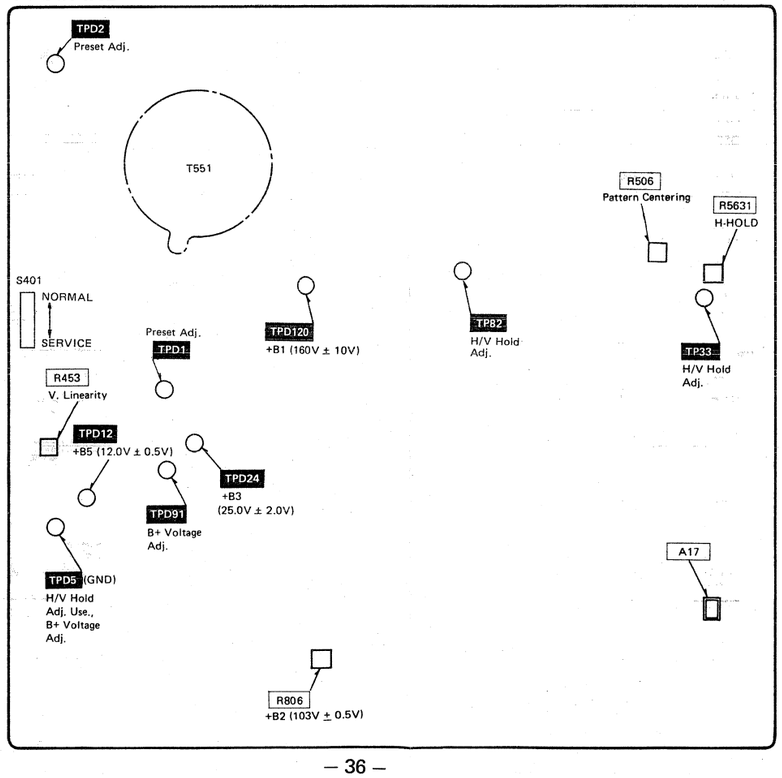
R-BOARD



B-BOARD



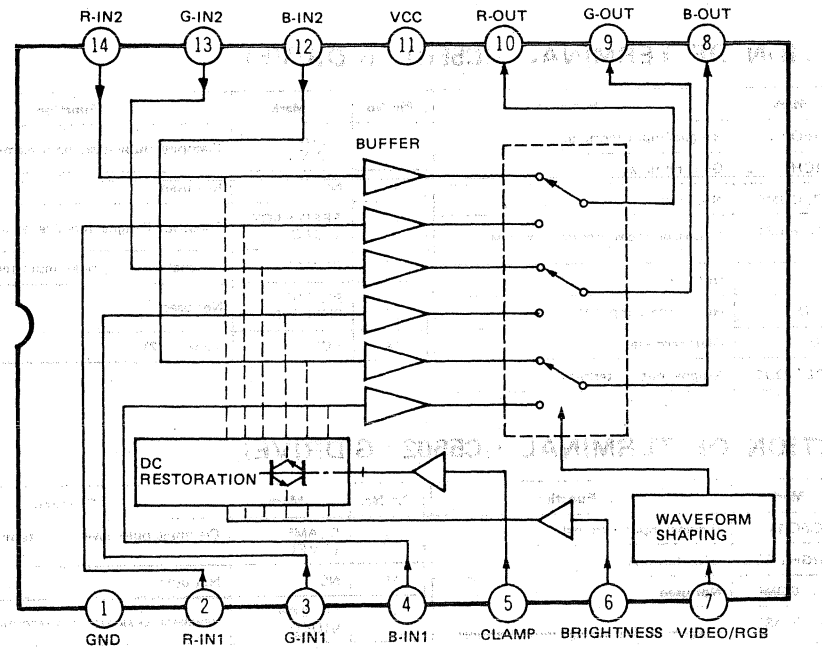
A-BOARD



■ FUNCTION OF TERMINAL (IC601 : AN5625N)

Pin No.	Mark	Function	Pin No.	Mark	Function
1		Delay Line Matrix input terminal	13	COLOR KILLER	Color killer filter terminal.
2	1 HFF PULSE	H. Pulse input terminal.	14	BURST GATE PULSE IN	Burst gate pulse input terminal.
3		Delay signal output terminal	15	3.58 MHz	Not used.
4		Time constant terminal	16	4.43 MHz	4.43 MHz sub carrier oscillation output terminal.
5		Chroma signal input terminal.	17	OSC IN	4.43 MHz sub carrier oscillation input terminal.
6	GND	GND terminal.	18	CLAMP BLK.	Blanking pulse input terminal.
7	CHROMA IN	Chroma signal input terminal.	19	PAL/NTSC	PAL/NTSC selecting pulse input terminal.
8	COLOR/CTL	Color control voltage input terminal.	20	B-Y OUT	Difference signal (B-Y) output terminal.
9	TNT/CTL	Phase control voltage input terminal.	21	G-Y OUT	Not used.
10	ACC	ACC filter terminal.	22	R-Y OUT	Difference signal (R-Y) output terminal.
11	VCC	Apply +12V.			
12	APC	Phase detection terminal.			

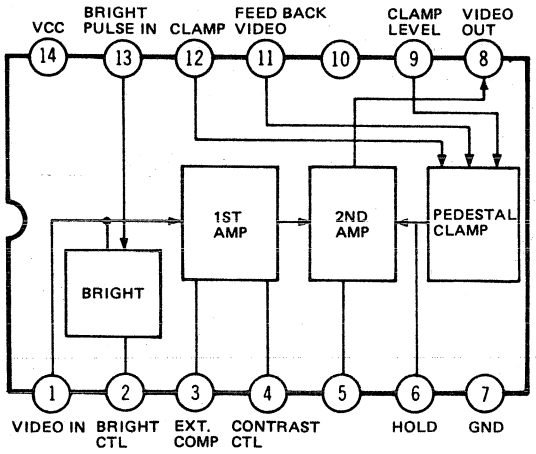
■ EQUIVALENT CIRCUIT (IC5002 : AN5860)



■ FUNCTION OF TERMINAL (IC5002 : AN5860)

Pin No.	Mark	Function	Pin No.	Mark	Function
1	GND	GND terminal.	8	R-OUT	R-signal output terminal.
2	R-IN 1	R(1)-signal input terminal.	9	G-OUT	G-signal output terminal.
3	G-IN 1	G(1)-signal input terminal.	10	B-OUT	B-signal output terminal.
4	B-IN1	B(1)-signal input terminal.	11	VCC	Apply +12V.
5	CLAMP	DC restoration input terminal.	12	B-IN 2	B(2)-signal input terminal.
6	BRIGHTNESS	Brightness control voltage input terminal.	13	G-IN 2	G(2)-signal input terminal.
7	VIDEO/RGB	VIDEO/RGB selecting pulse input terminal.	14	R-IN 2	R(2)-signal input terminal.

■ EQUIVALENT CIRCUIT (IC5501/IC5502/IC5503 : M51392P)



■ FUNCTION OF TERMINAL (IC5501 : R DRIVE)

Pin No.	Mark	Function
1	VIDEO IN	R-signal input terminal.
2	BRIGHT CTL	GND terminal.
3	EXT. COMP	Not used.
4	CONTRAST CTL	R signal driving voltage input terminal.
5	NC	Not used.
6	HOLD	Hold voltage input terminal.
7	GND	GND terminal.
8	VIDEO OUT	R-signal output terminal.

Pin No.	Mark	Function
9	CLAMP LEVEL	Clamping pulse level input terminal.
10	NC	Not used.
11	FEED BACK VIDEO	Feedback R-signal input terminal.
12	CLAMP	R-signal clamping pulse input terminal.
13	BRIGHT PULSE IN	Not used.
14	VCC	Apply +12V.

■ FUNCTION OF TERMINAL (IC5502 : G DRIVE)

Pin No.	Mark	Function
1	VIDEO IN	G-signal input terminal.
2	BRIGHT CTL	GND terminal.
3	EXT. COMP	Not used.
4	CONTRAST CTL	G-signal driving voltage input terminal.
5	NC	Not used.
6	HOLD	Hold voltage input terminal.
7	GND	GND terminal.
8	VIDEO OUT	G-signal output terminal.

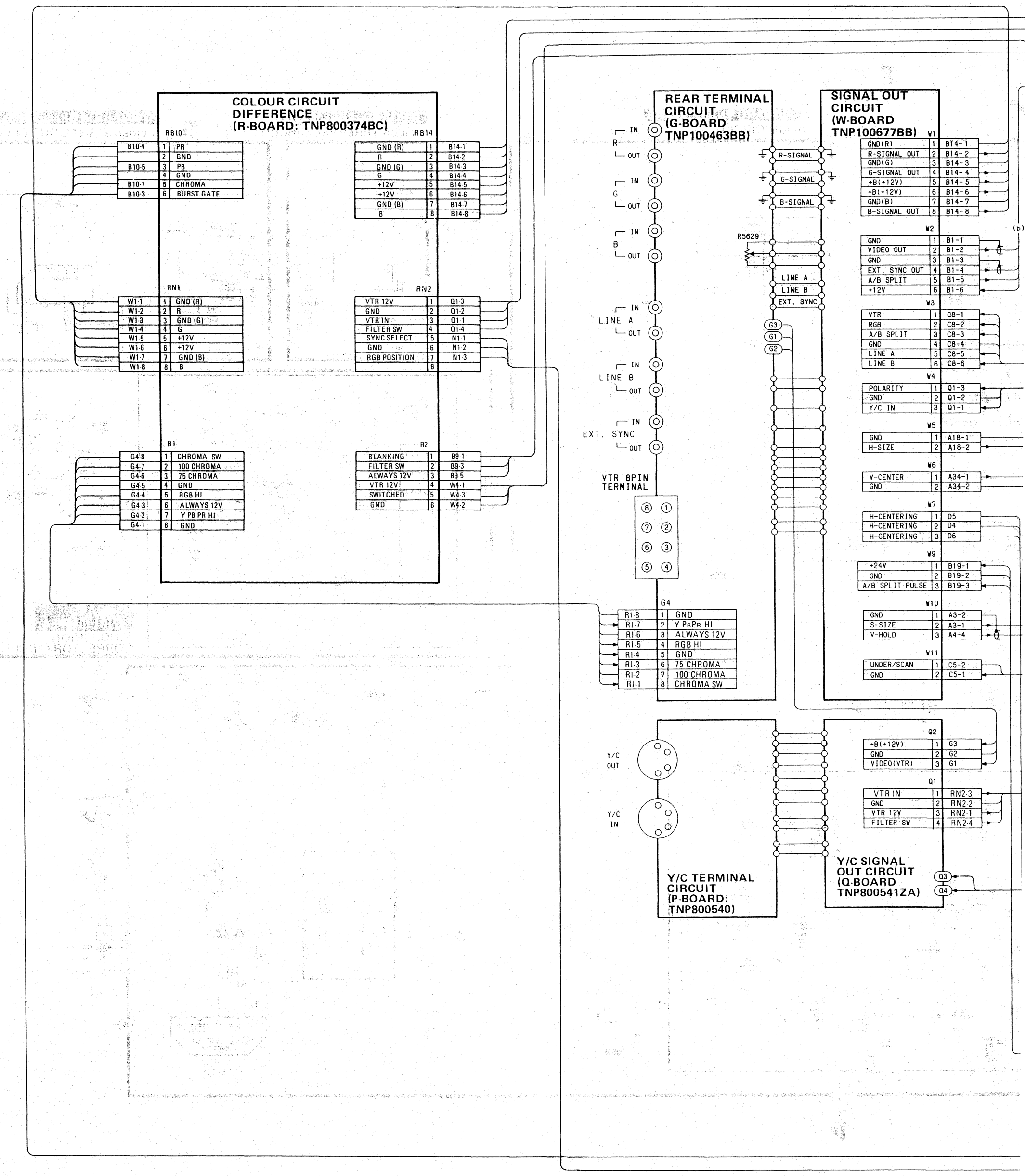
Pin No.	Mark	Function
9	CLAMP LEVEL	Clamping pulse level input terminal.
10	NC	Not used.
11	FEEDBACK VIDEO	Feedback G-signal input terminal.
12	CLAMP	G-signal clamping pulse input terminal.
13	BRIGHT PULSE IN	Not used.
14	VCC	Apply +12V.

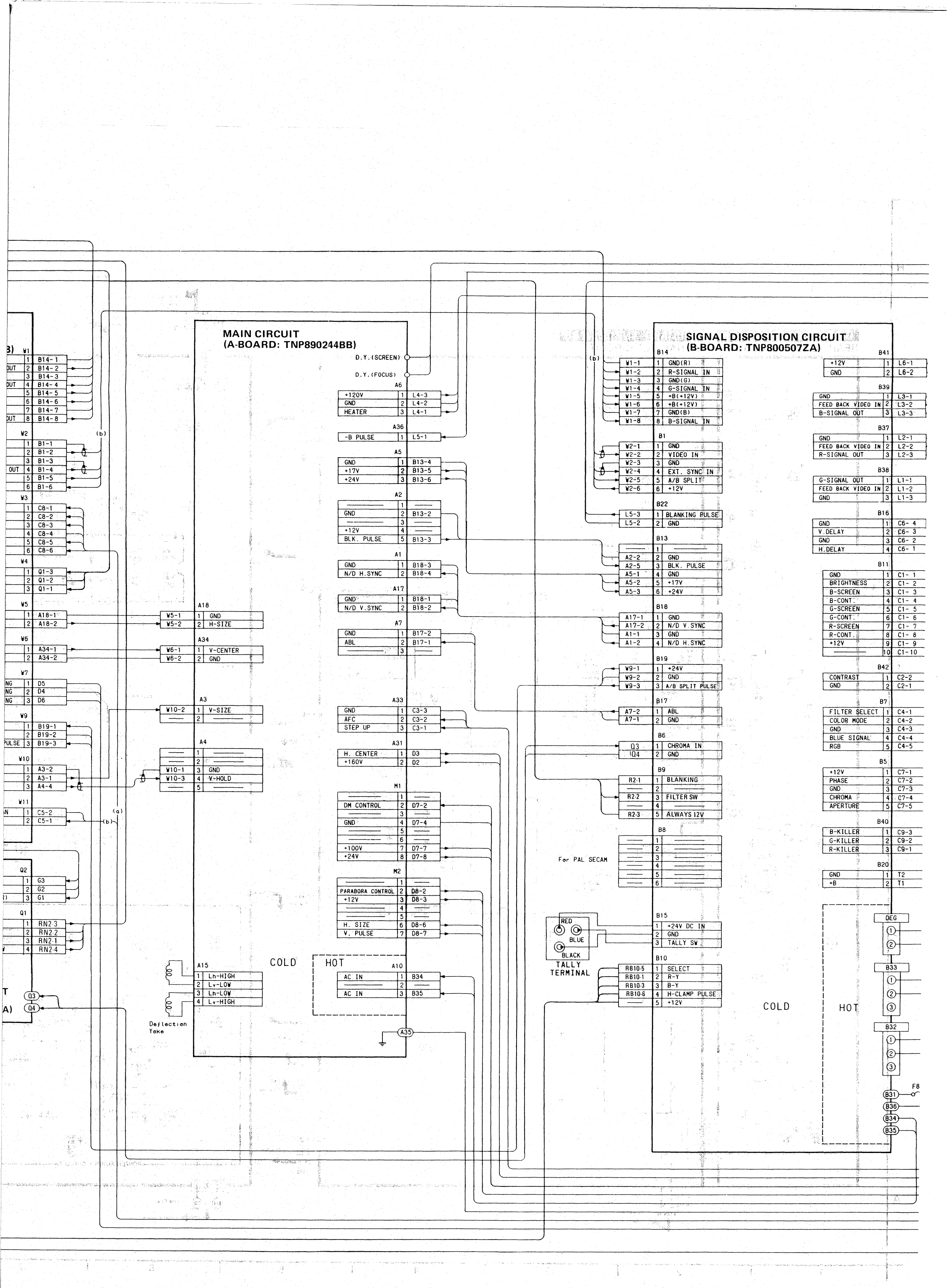
■ FUNCTION OF TERMINAL (IC5503: B DRIVE)

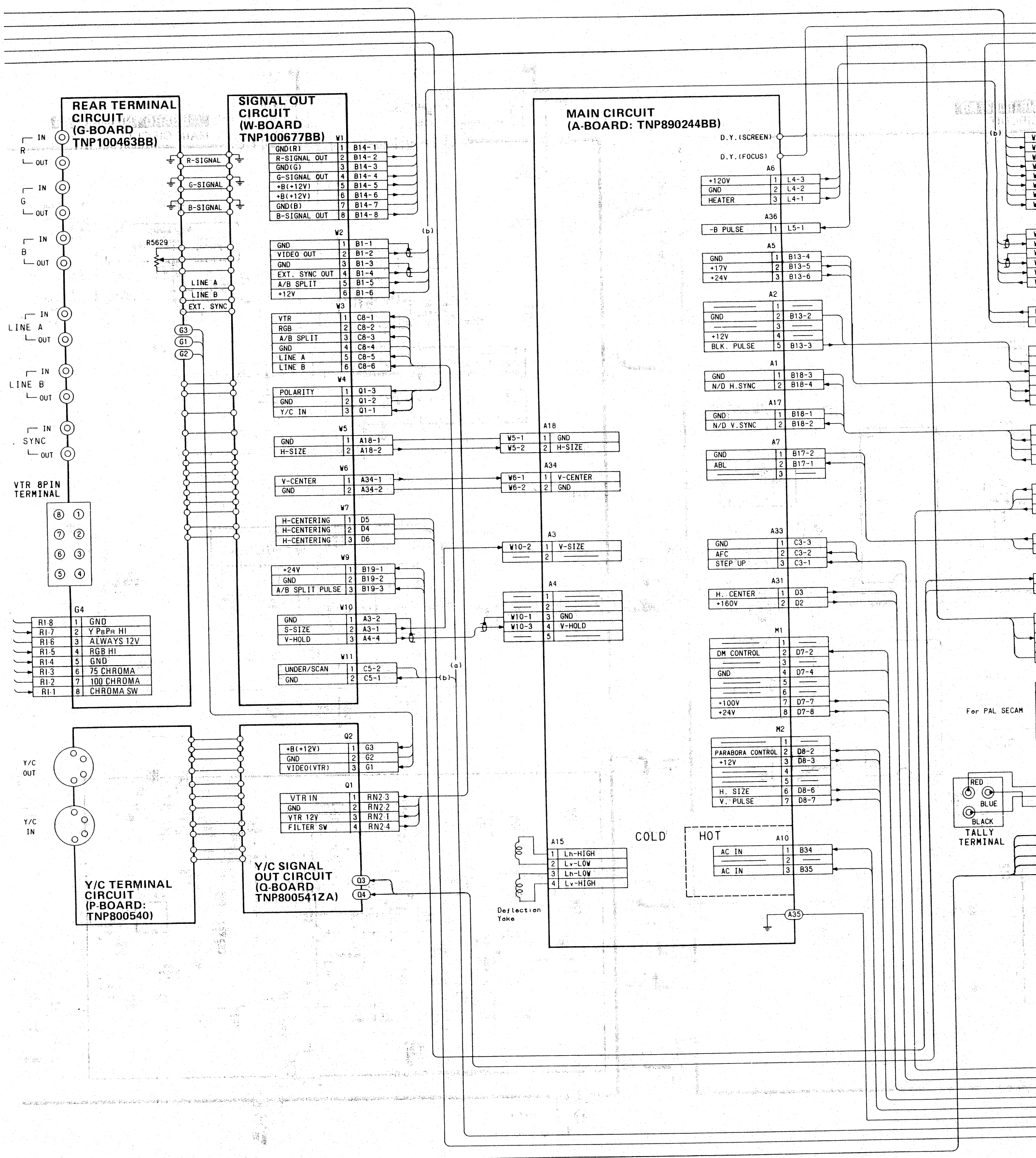
Pin No.	Mark	Function
1	VIDEO IN	B-signal input terminal.
2	BRIGHT CTL	GND terminal.
3	EXT. COMP	Not used.
4	CONTRAST CTL	B-signal driving voltage input terminal.
5	NC	Not used.
6	HOLD	Hold voltage input terminal.
7	GND	GND terminal.
8	VIDEO OUT	B-signal output terminal.

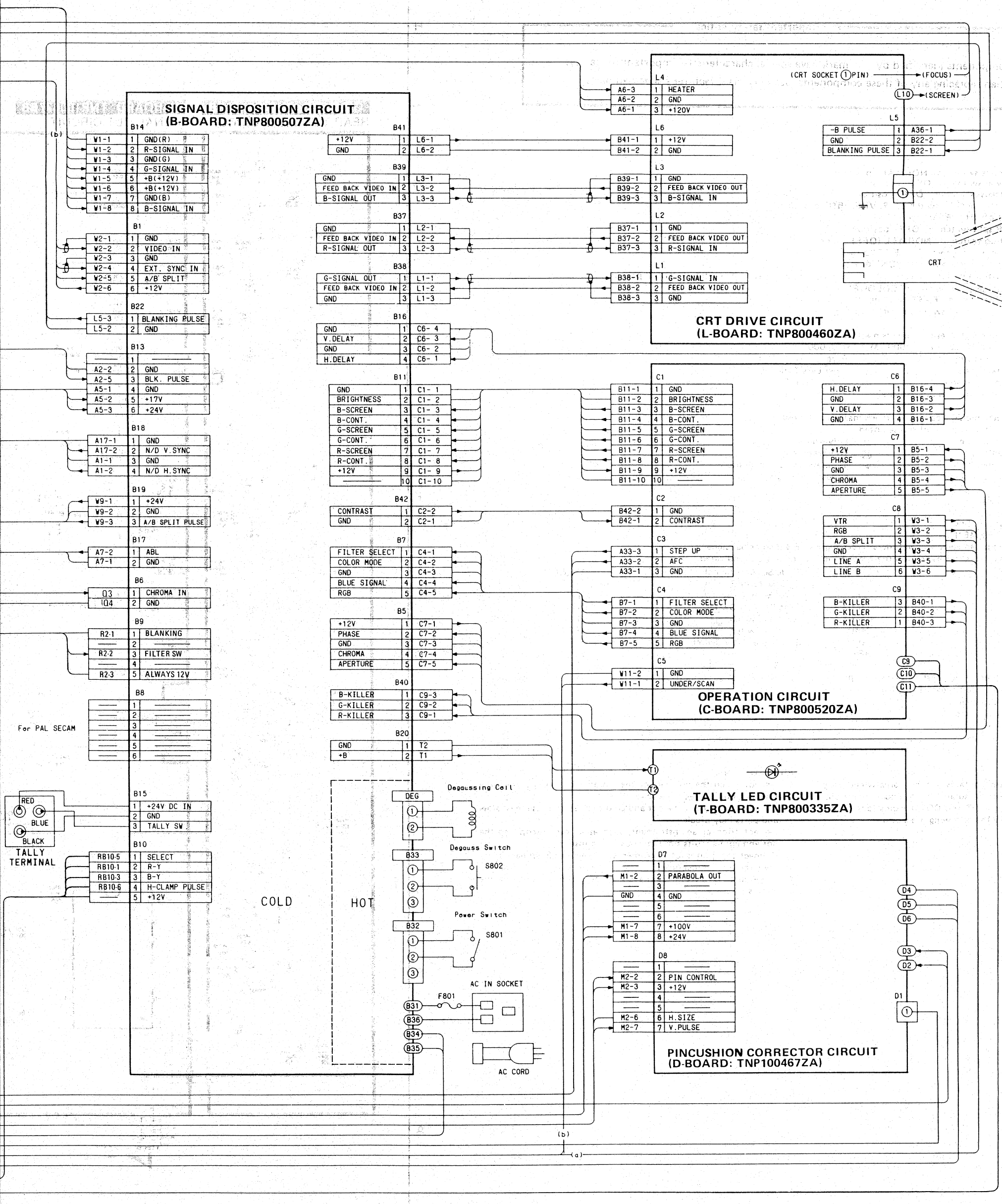
Pin No.	Mark	Function
9	CLAMP LEVEL	Clamping pulse level input terminal.
10	NC	Not used.
11	FEEDBACK VIDEO	Feedback B-signal input terminal.
12	CLAMP	B-signal clamping pulse input terminal.
13	BRIGHT PULSE IN	Not used.
14	VCC	Apply +12V.

INTERCONNECTION SCHEMATIC DIAGRAM




MAIN CIRCUIT
(A-BOARD: TNP890244BB)
SIGNAL DISPOSITION CIRCUIT
(B-BOARD: TNP800507ZA)
D.Y.(SCREEN)
D.Y.(FOCUS)
A6
+120V 1 L4-3
GND 2 L4-2
HEATER 3 L4-1
A36
-B PULSE 1 L5-1
A5
GND 1 B13-4
+17V 2 B13-5
+24V 3 B13-6
A2
GND 2 B13-2
+12V 4
BLK. PULSE 5 B13-3
A1
GND 1 B18-3
N/D H.SYNC 2 B18-4
A17
GND 1 B18-1
N/D V.SYNC 2 B18-2
A7
GND 1 B17-2
ABL 2 B17-1
A33
GND 1 C3-3
AFC 2 C3-2
STEP UP 3 C3-1
A31
H. CENTER 1 D3
+160V 2 D2
M1
DM CONTROL 2 D7-2
GND 4 D7-4
+100V 7 D7-7
+24V 8 D7-8
M2
PARABORA CONTROL 2 D8-2
+12V 3 D8-3
H. SIZE 6 D8-6
V. PULSE 7 D8-7
A18
W5-1 1 GND
W5-2 2 H-SIZE
A34
W6-1 1 V-CENTER
W6-2 2 GND
A3
W10-2 1 V-SIZE
A4
W10-1 3 GND
W10-3 4 V-HOLD
A15
1 Lh-HIGH
2 Lv-LOW
3 Lh-LOW
4 Lv-HIGH
Deflection Yoke
COLD
HOT
A10
AC IN 1 B34
AC IN 3 B35
A35
B14
W1-1 1 GND(R)
W1-2 2 R-SIGNAL IN
W1-3 3 GND(G)
W1-4 4 G-SIGNAL IN
W1-5 5 +B(+12V)
W1-6 6 +B(+12V)
W1-7 7 GND(B)
W1-8 8 B-SIGNAL IN
B1
W2-1 1 GND
W2-2 2 VIDEO IN
W2-3 3 GND
W2-4 4 EXT. SYNC IN
W2-5 5 A/B SPLIT
W2-6 6 +12V
B22
L5-3 1 BLANKING PULSE
L5-2 2 GND
B13
A2-2 2 GND
A2-5 3 BLK. PULSE
A5-1 4 GND
A5-2 5 +17V
A5-3 6 +24V
B18
A17-1 1 GND
A17-2 2 N/D V.SYNC
A1-1 3 GND
A1-2 4 N/D H.SYNC
B19
W9-1 1 +24V
W9-2 2 GND
W9-3 3 A/B SPLIT PULSE
B17
A7-2 1 ABL
A7-1 2 GND
B6
Q3 1 CHROMA IN
Q4 2 GND
B9
R2-1 1 BLANKING
R2-2 3 FILTER SW
R2-3 5 ALWAYS 12V
B8
For PAL SECAM
B15
1 +24V DC IN
2 GND
3 TALLY SW
RED
BLUE
BLACK
TALLY TERMINAL
B10
RB10-5 1 SELECT
RB10-1 2 R-Y
RB10-3 3 B-Y
RB10-6 4 H-CLAMP PULSE
5 +12V
B41
+12V 1 L6-1
GND 2 L6-2
B39
GND 1 L3-1
FEED BACK VIDEO IN 2 L3-2
B-SIGNAL OUT 3 L3-3
B37
GND 1 L2-1
FEED BACK VIDEO IN 2 L2-2
R-SIGNAL OUT 3 L2-3
B38
G-SIGNAL OUT 1 L1-1
FEED BACK VIDEO IN 2 L1-2
GND 3 L1-3
B16
GND 1 C6- 4
V.DELAY 2 C6- 3
GND 3 C6- 2
H.DELAY 4 C6- 1
B11
GND 1 C1- 1
BRIGHTNESS 2 C1- 2
B-SCREEN 3 C1- 3
B-CONT. 4 C1- 4
G-SCREEN 5 C1- 5
G-CONT. 6 C1- 6
R-SCREEN 7 C1- 7
R-CONT. 8 C1- 8
+12V 9 C1- 9
10 C1-10
B42
CONTRAST 1 C2-2
GND 2 C2-1
B7
FILTER SELECT 1 C4-1
COLOR MODE 2 C4-2
GND 3 C4-3
BLUE SIGNAL 4 C4-4
RGB 5 C4-5
B5
+12V 1 C7-1
PHASE 2 C7-2
GND 3 C7-3
CHROMA 4 C7-4
APERTURE 5 C7-5
B40
B-KILLER 1 C9-3
G-KILLER 2 C9-2
R-KILLER 3 C9-1
B20
GND 1 T2
+B 2 T1
DEG
B33
B32
B31
B36
B34
B35
F8
W1 1 B14-1 2 B14-2 3 B14-3 4 B14-4 5 B14-5 6 B14-6 7 B14-7 8 B14-8
W2 1 B1-1 2 B1-2 3 B1-3 4 B1-4 5 B1-5 6 B1-6
W3 1 C8-1 2 C8-2 3 C8-3 4 C8-4 5 C8-5 6 C8-6
W4 1 Q1-3 2 Q1-2 3 Q1-1
W5 1 A18-1 2 A18-2
W6 1 A34-1 2 A34-2
W7 D5 D4 D6
W9 1 B19-1 2 B19-2 3 B19-3
W10 1 A3-2 2 A3-1 3 A4-4
W11 1 C5-2 2 C5-1
Q2 1 G3 2 G2 3 G1
Q1 1 RN2-3 2 RN2-2 3 RN2-1 4 RN2-4
Q3
Q4
(a)
(b)


REAR TERMINAL CIRCUIT (G-BOARD TNP100463BB)
IN
R
OUT
IN
G
OUT
IN
B
OUT
IN
LINE A
OUT
IN
LINE B
OUT
IN
SYNC
OUT
VTR 8PIN TERMINAL
R-SIGNAL
G-SIGNAL
B-SIGNAL
R5629
LINE A
LINE B
EXT. SYNC
G3
G1
G2
G4
R1-8 1 GND
R1-7 2 Y PBPR HI
R1-6 3 ALWAYS 12V
R1-5 4 RGB HI
R1-4 5 GND
R1-3 6 75 CHROMA
R1-2 7 100 CHROMA
R1-1 8 CHROMA SW
SIGNAL OUT CIRCUIT (W-BOARD TNP100677BB)
W1
GND(R) 1 B14-1
R-SIGNAL OUT 2 B14-2
GND(G) 3 B14-3
G-SIGNAL OUT 4 B14-4
+B(+12V) 5 B14-5
+B(+12V) 6 B14-6
GND(B) 7 B14-7
B-SIGNAL OUT 8 B14-8
W2
GND 1 B1-1
VIDEO OUT 2 B1-2
GND 3 B1-3
EXT. SYNC OUT 4 B1-4
A/B SPLIT 5 B1-5
+12V 6 B1-6
W3
VTR 1 C8-1
RGB 2 C8-2
A/B SPLIT 3 C8-3
GND 4 C8-4
LINE A 5 C8-5
LINE B 6 C8-6
W4
POLARITY 1 Q1-3
GND 2 Q1-2
Y/C IN 3 Q1-1
W5
GND 1 A18-1
H-SIZE 2 A18-2
W6
V-CENTER 1 A34-1
GND 2 A34-2
W7
H-CENTERING 1 D5
H-CENTERING 2 D4
H-CENTERING 3 D6
W9
+24V 1 B19-1
GND 2 B19-2
A/B SPLIT PULSE 3 B19-3
W10
GND 1 A3-2
S-SIZE 2 A3-1
V-HOLD 3 A4-4
W11
UNDER/SCAN 1 C5-2
GND 2 C5-1
(b)
(a)
(b)
Q2
+B(+12V) 1 G3
GND 2 G2
VIDEO(VTR) 3 G1
Q1
VTR IN 1 RN2-3
GND 2 RN2-2
VTR 12V 3 RN2-1
FILTER SW 4 RN2-4
Q3
Q4
Y/C OUT
Y/C IN
Y/C TERMINAL CIRCUIT (P-BOARD: TNP800540)
Y/C SIGNAL OUT CIRCUIT (Q-BOARD TNP800541ZA)
MAIN CIRCUIT (A-BOARD: TNP890244BB)
D.Y.(SCREEN)
D.Y.(FOCUS)
A6
+120V 1 L4-3
GND 2 L4-2
HEATER 3 L4-1
A36
-B PULSE 1 L5-1
A5
GND 1 B13-4
+17V 2 B13-5
+24V 3 B13-6
A2
GND 2 B13-2
+12V 4
BLK. PULSE 5 B13-3
A1
GND 1 B18-3
N/D H.SYNC 2 B18-4
A17
GND 1 B18-1
N/D V.SYNC 2 B18-2
A7
GND 1 B17-2
ABL 2 B17-1
A33
GND 1 C3-3
AFC 2 C3-2
STEP UP 3 C3-1
A31
H. CENTER 1 D3
+160V 2 D2
M1
DM CONTROL 2 D7-2
GND 4 D7-4
+100V 7 D7-7
+24V 8 D7-8
M2
PARABORA CONTROL 2 D8-2
+12V 3 D8-3
H. SIZE 6 D8-6
V. PULSE 7 D8-7
A18
W5-1 1 GND
W5-2 2 H-SIZE
A34
W6-1 1 V-CENTER
W6-2 2 GND
A3
W10-2 1 V-SIZE
A4
W10-1 3 GND
W10-3 4 V-HOLD
A15
1 Lh-HIGH
2 Lv-LOW
3 Lh-LOW
4 Lv-HIGH
Deflection Yoke
COLD
HOT
A10
AC IN 1 B34
AC IN 3 B35
A35
(b)
For PAL SECAM
RED
BLUE
BLACK
TALLY TERMINAL


SIGNAL DISPOSITION CIRCUIT
(B-BOARD: TNP800507ZA)
B14
W1-1 1 GND(R)
W1-2 2 R-SIGNAL IN
W1-3 3 GND(G)
W1-4 4 G-SIGNAL IN
W1-5 5 +B(+12V)
W1-6 6 +B(+12V)
W1-7 7 GND(B)
W1-8 8 B-SIGNAL IN
B1
W2-1 1 GND
W2-2 2 VIDEO IN
W2-3 3 GND
W2-4 4 EXT. SYNC IN
W2-5 5 A/B SPLIT
W2-6 6 +12V
B22
L5-3 1 BLANKING PULSE
L5-2 2 GND
B13
A2-2 2 GND
A2-5 3 BLK. PULSE
A5-1 4 GND
A5-2 5 +17V
A5-3 6 +24V
B18
A17-1 1 GND
A17-2 2 N/D V.SYNC
A1-1 3 GND
A1-2 4 N/D H.SYNC
B19
W9-1 1 +24V
W9-2 2 GND
W9-3 3 A/B SPLIT PULSE
B17
A7-2 1 ABL
A7-1 2 GND
B6
Q3 1 CHROMA IN
Q4 2 GND
B9
R2-1 1 BLANKING
R2-2 3 FILTER SW
R2-3 5 ALWAYS 12V
B8
For PAL SECAM
B15
1 +24V DC IN
2 GND
3 TALLY SW
RED
BLUE
BLACK
TALLY TERMINAL
B10
RB10-5 1 SELECT
RB10-1 2 R-Y
RB10-3 3 B-Y
RB10-6 4 H-CLAMP PULSE
5 +12V
COLD
HOT
B41
+12V 1 L6-1
GND 2 L6-2
B39
GND 1 L3-1
FEED BACK VIDEO IN 2 L3-2
B-SIGNAL OUT 3 L3-3
B37
GND 1 L2-1
FEED BACK VIDEO IN 2 L2-2
R-SIGNAL OUT 3 L2-3
B38
G-SIGNAL OUT 1 L1-1
FEED BACK VIDEO IN 2 L1-2
GND 3 L1-3
B16
GND 1 C6-4
V.DELAY 2 C6-3
GND 3 C6-2
H.DELAY 4 C6-1
B11
GND 1 C1-1
BRIGHTNESS 2 C1-2
B-SCREEN 3 C1-3
B-CONT. 4 C1-4
G-SCREEN 5 C1-5
G-CONT. 6 C1-6
R-SCREEN 7 C1-7
R-CONT. 8 C1-8
+12V 9 C1-9
10 C1-10
B42
CONTRAST 1 C2-2
GND 2 C2-1
B7
FILTER SELECT 1 C4-1
COLOR MODE 2 C4-2
GND 3 C4-3
BLUE SIGNAL 4 C4-4
RGB 5 C4-5
B5
+12V 1 C7-1
PHASE 2 C7-2
GND 3 C7-3
CHROMA 4 C7-4
APERTURE 5 C7-5
B40
B-KILLER 1 C9-3
G-KILLER 2 C9-2
R-KILLER 3 C9-1
B20
GND 1 T2
+B 2 T1
Degaussing Coil
DEG
Degauss Switch
B33
S802
Power Switch
B32
S801
AC IN SOCKET
F801
B31
B36
B34
B35
AC CORD
L4
A6-3 1 HEATER
A6-2 2 GND
A6-1 3 +120V
L6
B41-1 1 +12V
B41-2 2 GND
L3
B39-1 1 GND
B39-2 2 FEED BACK VIDEO OUT
B39-3 3 B-SIGNAL IN
L2
B37-1 1 GND
B37-2 2 FEED BACK VIDEO OUT
B37-3 3 R-SIGNAL IN
L1
B38-1 1 G-SIGNAL IN
B38-2 2 FEED BACK VIDEO OUT
B38-3 3 GND
CRT DRIVE CIRCUIT
(L-BOARD: TNP800460ZA)
(CRT SOCKET 1PIN) → (FOCUS)
L10 → (SCREEN)
L5
-B PULSE 1 A36-1
GND 2 B22-2
BLANKING PULSE 3 B22-1
CRT
C1
B11-1 1 GND
B11-2 2 BRIGHTNESS
B11-3 3 B-SCREEN
B11-4 4 B-CONT.
B11-5 5 G-SCREEN
B11-6 6 G-CONT.
B11-7 7 R-SCREEN
B11-8 8 R-CONT.
B11-9 9 +12V
B11-10 10
C2
B42-2 1 GND
B42-1 2 CONTRAST
C3
A33-3 1 STEP UP
A33-2 2 AFC
A33-1 3 GND
C4
B7-1 1 FILTER SELECT
B7-2 2 COLOR MODE
B7-3 3 GND
B7-4 4 BLUE SIGNAL
B7-5 5 RGB
C5
W11-2 1 GND
W11-1 2 UNDER/SCAN
OPERATION CIRCUIT
(C-BOARD: TNP800520ZA)
C6
H.DELAY 1 B16-4
GND 2 B16-3
V.DELAY 3 B16-2
GND 4 B16-1
C7
+12V 1 B5-1
PHASE 2 B5-2
GND 3 B5-3
CHROMA 4 B5-4
APERTURE 5 B5-5
C8
VTR 1 W3-1
RGB 2 W3-2
A/B SPLIT 3 W3-3
GND 4 W3-4
LINE A 5 W3-5
LINE B 6 W3-6
C9
B-KILLER 3 B40-1
G-KILLER 2 B40-2
R-KILLER 1 B40-3
C9
C10
C11
T1
T2
TALLY LED CIRCUIT
(T-BOARD: TNP800335ZA)
D7
M1-2 2 PARABOLA OUT
GND 4 GND
M1-7 7 +100V
M1-8 8 +24V
D8
M2-2 2 PIN CONTROL
M2-3 3 +12V
M2-6 6 H.SIZE
M2-7 7 V.PULSE
D4
D5
D6
D3
D2
D1
PINCUSHION CORRECTOR CIRCUIT
(D-BOARD: TNP100467ZA)
(b)
(a)

:HEMATIC DIAGRAM FOR MODEL BT-D2020PY/PYG
HASSIS NO. H01M5)

Important safety notice

Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.

E:

S401 : Service switch in "**NORMAL**" position.
S801 : Power switch in "**OFF**" position.
S802 : Degauss switch in "**OFF**" position.
SW5201 : 8P Y/C selector switch in "**S. VHS. 75Ω**" position.
SW5802 : Cut off (R.G.B.) switch.
SW5805 : A/B split switch in "**OFF**" position.
SW5806 : Set-up switch in "**NORMAL (OFF)**" position.
SW5807 : Sync selector switch in "**EXT**" position.
SW5808 : Filter selector switch in **"ON"** position.
SW5809 : BLUE SignalUunder scan ⊡ /H. Delay ⊟ /V. Delay ⊟ switch in "**OFF**" position.
SW5810 : Mode selector switch in "**COLOUR**" position.
SW5814 : AFC switch in "**FAST**"position.
SW5815 : Preset selector switch in "**ON**" position.

RESISTOR
All resistors are carbon 1/4W resistor, unless marked as follows:
Unit of resistance is OHM (Ω), (K = 1,000, M = 1,000, 000).

- △ : Solid resistor
- ● : Metal Oxide
- ○ : Non flammable
- ◪ : Wire Wound (non flammable)
- ⊗ : Fuse
- Ⓛ : Lead Less Type
- ◎ : Fixed Metal Film

CAPACITOR
All capacitors are ceramic 50V capacitor, unless marked as follows:
Unit of capacitance is μF, unless otherwise noted.

- ⁺‖⁻ : Electrolytic
- (NP) : Bipolar
- (Z) : Z Type
- Ⓛ : Lead Less Type
- Ⓜ : Polyester
- ⊠ : Polypropylene
- ● : Temperature Compensation
- Ⓣ : Dipped Tantalum

COIL
Unit of inductance is μH.
TEST POINT
● : Test point position.
VOLTAGE MEASUREMENT
Voltage is measured by an electronic voltmeter receiving Full Field color bar signal.
Set the following controls and switch (on the Front Panel) to the position indicated.

Drive Control (R/B)	.Centre	Mode Selector Switch	.COLOUR
Screen Control VR (R/G/B)	.Centre	AFC Selector Switch	.FAST
Contrast VR	.Centre	Filter Selector Switch	.ON
Chroma VR	.Centre	Sync Selector Switch	.INT
Aperture VR.	.Centre	H-Delay Switch ⊡	.OFF
Brightness VR.	.Centre	V-Delay Switch ⊟	.OFF
Phase VR.	.Centre	Blue Signal Only Switch	.OFF
Set-Up Switch	.OFF	Preset Switch	.ON
Cut Off Switch	.OFF	A/B Split Selector Switch	.OFF

This schematic diagram is the latest at the time of printing and subject to change without notice.

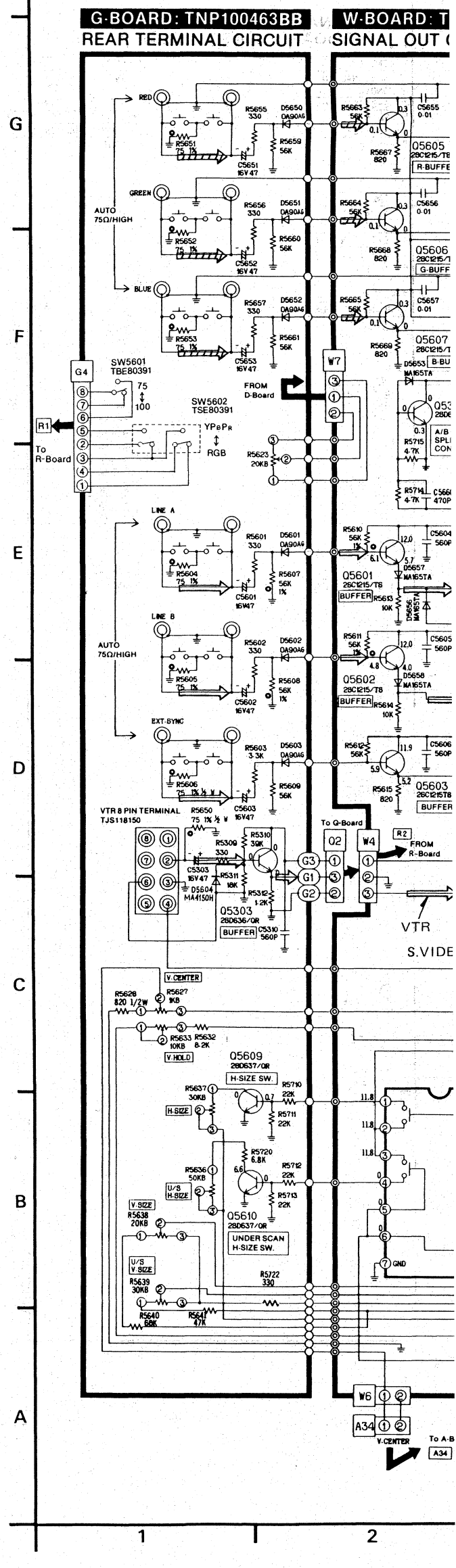
- Positive and negative voltage lines.
- Video signal
- S. Video signal
- V or H Out
- RGB signal

ı:

Power Circuit board contains a circuit area which uses parate power supply to isolate the ground connection. circuit is defined by HOT and COLD indications in the matic diagram. Take the following precautions.

PRECAUTIONS

1. Do not touch the hot part or the hot and cold parts at the same time or you may receive a shock.
2. Do not short-circuit the hot and cold circuits or a fuse may blow and parts may break.
3. Do not connect an instrument, such as an oscilloscope, to the hot and cold circuits simultaneously or a fuse may blow. Connect the ground of instruments to the ground connection of the circuit being measured.
4. Make sure to disconnect the power plug before removing the chassis.



): TNP100463BB
MINAL CIRCUIT

W-BOARD: TNP100677BB
SIGNAL OUT CIRCUIT

A-BOAR
MAIN CI

SW5602
TSE80391
YPBPR
RGB

FROM D-Board

R5623 20KB

R5655 330 D5650 DA90A6 R5659 56K C5651 16V 47
R5656 330 D5651 DA90A6 R5660 56K C5652 16V 47
R5657 330 D5652 DA90A6 R5661 56K C5653 16V 47
R5601 330 D5601 DA90A6 R5604 75 1% R5607 56K 1% C5601 16V 47
R5602 330 D5602 DA90A6 R5605 75 1% R5608 56K 1% C5602 16V 47
R5603 3.3K D5603 DA90A6 R5606 75 1% 1/2 W R5609 56K C5603 16V 47
R5650 75 1% 1/2 W

R5663 56K C5655 0.01 — 05605 2SC1215/TB R-BUFFER — (R)
R5664 56K C5656 0.01 — Q5606 2SC1215/TB G-BUFFER — (G)
R5665 56K C5657 0.01 — Q5607 2SC1215/TB B-BUFFER — (B)
R5667 820
R5668 820
R5669 820
D5653 MA165TA
D5659 MA165TA

Q5307 2SD637/OR
R5715 4.7K
A/B SPLIT CONTROL
R5714 4.7K C5660 470P

R5610 56K 1% C5604 560P — Q5601 2SC1215/TB BUFFER — R5613 10K
R5611 56K 1% C5605 560P — Q5602 2SC1215/TB BUFFER — R5614 10K
R5612 56K C5606 560P — Q5603 2SC1215TB BUFFER — R5615 820
D5657 MA165TA
D5656 MA165TA
D5658 MA165TA

D5302 MA165TA
D5654 MA165TA
R5678 10K

To Q-Board
Q2
W4
R2
FROM R-Board
G3 G1 G2
VTR S.VIDEO
Q5306 2SD637/QR POLARITY CHANGE

R5309 330
R5310 39K
R5311 18K
R5312 1.2K
C5303 16V 47
D5604 MA4150H
Q5303 2SD636/QR BUFFER
C5310 560P

V-CENTER
R5627 1KB
R5633 10KB
R5632 8.2K
V-HOLD

Q5609 2SD637/OR H-SIZE SW.
R5637 30KB
R5710 22K
R5711 22K
H-SIZE

R5636 50KB
R5720 6.8K
R5712 22K
R5713 22K
U/S H-SIZE

Q5610 2SD637/OR UNDER SCAN H-SIZE SW.

R5722 330
R564 47K

IC5302
TVSTC4053BP
A/B SPLIT CONTROL

R5677 10K
R5327 10K
R5328 330
R5329 330
R5330 4.7K
R5672 10K
R5673 56K R5674 56K R5675 56K R5676 56K
D5670 MA4150M
D5671 MA4150M
D5303 MA27WB
D5305 MA154WA
D5655 MA165
D5304 MA27WB
R5679 10K

IC5304
AN608P
SYNC AMP
C5704 16V 220
R5705 2.2K
C5702 25V 10
R5706 560
R5708 10
C5703 16V 100
C5706 330P
R5001 470

R5717 22K
R5716 22K
Q5306
R5331 22K
Q5611
R5313 2.2K
R5314 560
C5305 16V 100
R5315 10

IC5303
AN608P
VTR OUT
C5304 16V 47
R5052 100

R5317 330
Q5305 2SD636/QR VTR OUT DRIVE
C5306 10V 1000
R5319 330
R5320 75
R5321 10K

IC5301
TVSTC4066BP
SELECTOR

R5434 4.7K
R5626 470 1/2W
C5608 0.01
C5609 16V 10
R5635 270
R5721 10K
Q5604 2SD637/OR
R5719 22K
R5718 22K

IC5601
TVSTC4066BP
UNDER/OVER SELECT SW.

W6 A34 V-CENTER To A-Board A34

W1 RN1 W3 C8 W2 B1 W9 B19 W11 A4 W10 A3 W5 A18 H-SIZE

RN1 To R-Board
C8 To C-Board
To B-Board B1
C3 To C-Board
To B-Board B19
C5 To C-Board
To A-Board A4
A3 To A-Board
To A-Board A18

H. Pulse
V. Pulse
V-Hold FROM W-Board W10

FROM B-Board B18 H.Sync. V.Sync.
FROM W-Board W10 V-Size
To B-Board B13 GND +17V +24V
A1 A17 A3 A2 A5
+17V +24V

R404 22

Q5553 2SD637/QR 2SC1685/QR SYNC OUTPUT
Q5554 2SB642/QR 2SA564A/QRB SYNC OUTPUT

R413 2.7K
D405 MA27QB
R447 15K

IC401
AN5435
V-OSC/DRIVE
L401 180
C401 0.02
C402 16V 220
C403 16V 2.2
C404 16V 3.3
R405 27K
C405 16V 100
R408 5.6K
R409 5.6K
NOISE DETECTOR
SYNC SEPARATOR
VERT OSC
VERT RAMP GEN.
VERT DRIVE
HORIZ AFC
HORIZ OSC
PROTECTOR
HORIZ BUFFER
C411 0.01
R410 560
D402 MA166
S401 EVQ21AL13 SERVICE SWITCH

PULSE SHAPING
FLYBACK GENERATER
DRIVER STAGE
C451 50V 1
R451 15K
D451 EM1Z
R454 15K
C452 35V 100
C459 35V 470
C453 0.1
R781 82 1/2 W
C757 35V 330
D770 TVSRD20FB1

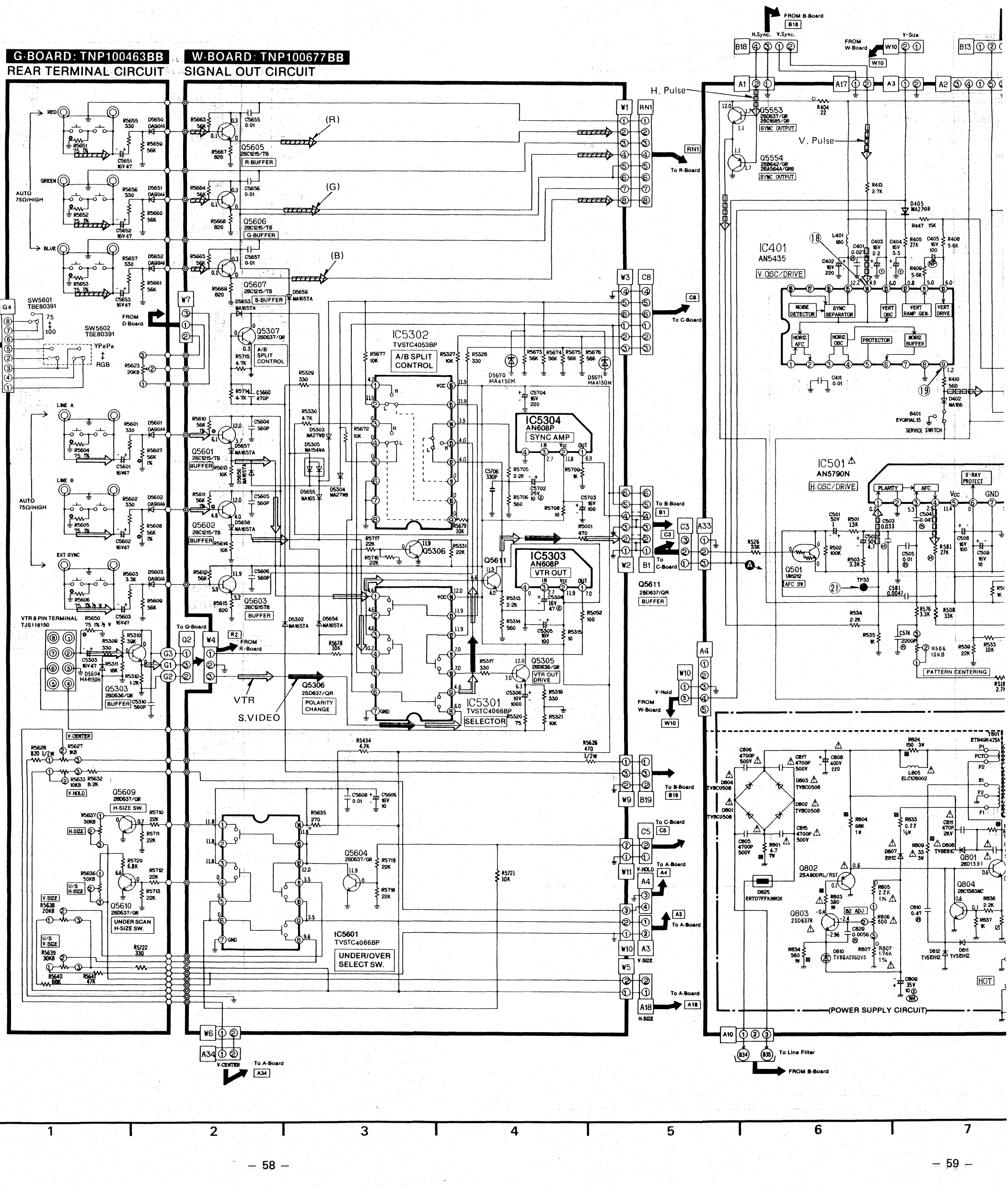
IC501
AN5790N
H-OSC/DRIVE
PLARITY AFC Vcc GND X-RAY PROTECT PRE AMP PULSE WIDTH ADG H OSC
C501 50V 1
R501 1.5K
C503 0.033
C504 0.047
R502 100K
R503 3.3K
C505 0.01
C502 50V 4.7
R581 27K
C508 16V 100
C509 16V 10
C510 6800P
C513 1200P
L562 TSC925-4
Q501 UN1212 AFC SW
TP33
C581 0.0047
R509 1K
R521 120K
R510 39K
R534 2.2K
R535 1K
R576 3.3K
R508 33K
C532 4.7
R513 1K
C574 2200P
R506 10KB
R539 22K
R533 10K
C516 6800P
TPD5
PATTERN CENTERING
R518 2.7K
R526 33K

T801 ETB49K425A
C806 4700P 500V
C807 4700P 500V
C808 400V 220
R824 150 3W
L805 ELC12B002
D804 TVBC0508
D801 TVBC0508
D803 TVBC0508
D802 TVBC0508
C805 4700P 500V
C815 4700P 500V
R801 4.7 7W
D825 ERTD7FFK8R0X
R804 68K 1W
R833 0.22 1/2W
R809 33 3W
D807 ESIZ
C811 470P 2KV
R810 68K 1W
D808 TVSE81C
C812 0.01 500V
Q801 2SD1591
Q804 2SC1383MC
Q802 2SA900RL/RST
Q803 2SD637R
R803 380 1W
B2 ADJ
R805 2.2K 1%
R806 500
C829 0.0056
R807 1.74K 1%
R534 560 1W
D810 TVSQA205DVS
C810 0.47
R837 1K
R836 2.2K
R811 0.39 2W
D812 TVSEHIZ
D811 TVSEHIZ
C809 35V 10
R812 8.2M 3/4 W
HOT COLD
T802 ETE16Z29AY
L562 TSC925-4
R566 6.8 1W
C570 0.15
C820 2200P
C831 560P 2KV
C838 560P 2KV
C834 2200P 500V
C840 2200P 500V
D615 TVSRU2AM
D822 TVSRU2AM
D817 TVSRU2AM
R841 0.22 1/2W
L812 TLP406
D819 TVSRU2AM
C835 35V 100
C826 1000P 500V
D821 TVSRU2AM
R842 0.22 1/2W
C821 25V 1000
(POWER SUPPLY CIRCUIT)
A10 To Line Filter FROM B-Board
A36 L5 To L-Board L5

2 3 4 5 6 7 8

G-BOARD: TNP100463BB
REAR TERMINAL CIRCUIT

W-BOARD: TNP100677BB
SIGNAL OUT CIRCUIT



A-BOARD TNP890244AB
MAIN CIRCUIT

P-BOARD: TNP800540
S-Video TERMINAL CIRCUIT

Q-BOARD: TNP800541ZA
S-Video SIGNAL OUT CIRCUIT

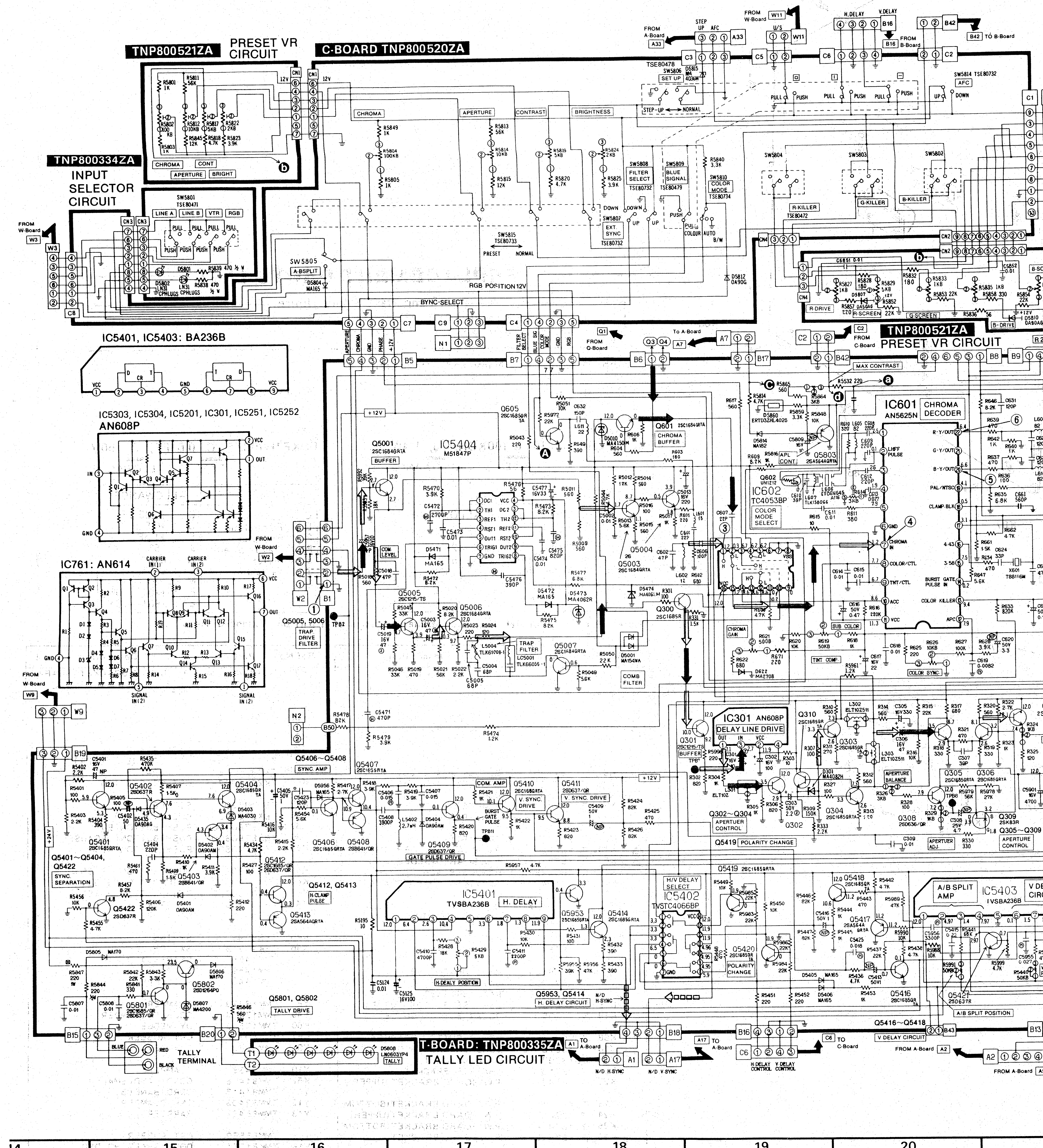
D-BOARD: TNP100467ZA
PINCUSHION CORRECTOR CIRCUIT

(PIN-CUSHION CORRECTOR CIRCUIT)

Q580, Q581
H. CENTERING

Q503, Q505
H. DRIVE

IC551
TNH11303
X-RAY PROTECTOR


TNP800521ZA PRESET VR CIRCUIT
C-BOARD TNP800520ZA
TNP800334ZA INPUT SELECTOR CIRCUIT
IC5401, IC5403: BA236B
IC5303, IC5304, IC5201, IC301, IC5251, IC5252 AN608P
IC761: AN614
TNP800521ZA PRESET VR CIRCUIT
IC5404 M51847P
IC601 AN5625N CHROMA DECODER
IC602 TC4053BP COLOR MODE SELECT
IC301 AN608P DELAY LINE DRIVE
Q5001 2SC1684QRTA BUFFER
Q601 2SC1684QRTA CHROMA BUFFER
Q5005, 5006 TRAP. DRIVE FILTER
Q5007 2SC1684QRTA COMB FILTER
Q5401~Q5404, Q5422 SYNC. SEPARATION
Q5406~Q5408 SYNC. AMP
Q5409 GATE PULSE DRIVE
Q5410 V. SYNC. DRIVE
Q5411 V. SYNC. DRIVE
Q5412, Q5413 H-CLAMP PULSE
IC5401 TVSBA236B H. DELAY
Q5953, Q5414 H. DELAY CIRCUIT
IC5402 TVSTC4066BP H/V DELAY SELECT
Q5419 POLARITY CHANGE
Q5420 POLARITY CHANGE
Q302~Q304 APERTUER CONTROL
Q305~Q309 APERTURE CONTROL
IC5403 IVSBA236B A/B SPLIT AMP
Q5421 A/B SPLIT POSITION
Q5416~Q5418 V DELAY CIRCUIT
Q5801, Q5802 TALLY DRIVE
TALLY TERMINAL
T-BOARD: TNP800335ZA TALLY LED CIRCUIT
14
15
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B-BOARD: TNP800507ZA
SIGNAL DISPOSITION CIRCUIT

L-BOARD TNP800460ZA
CRT DRIVE CIRCUIT

IC5001 TA7676AP — COLOR DEFFERENCE RECORDER

IC5002 AN5860 — RGB VIDEO SW.

IC5003 TC4066BP — BLUE SIGNAL SWITCH

IC5504 TVSTC4053BP — CLAMP PULSE SELECTOR

IC5506 AN5860 — Y SIGNAL CLAMPER

IC5501 M51392P — R DRIVE

IC5502 M51392P — G DRIVE

IC5503 M51392P — B DRIVE

IC5901 M5F7812 — +12V REGULATOR

IC5902 M5F7812 — 12V REGULATOR

IC5403 IVSBA236B — V DELAY CIRCUIT

Q5111 Y SIGNAL CLAMPER

Q5116 Y SIGNAL CLAMPER

Q5104 POLARITY CHANGE

Q5118 POLARITY CHANGE

Q5112, Q5113, Q5115 BLK. PULSE AMP

Q5423 H/V DELAY CONTRAST

Q353, Q356, Q362 B-CATHODE DRIVE

Q351, Q354, Q361 R-CATHODE DRIVE

Q352, Q355 Q360 G-CATHODE DRIVE

Q5101 R BUFFER

Q5102 G BUFFER

Q5103 B BUFFER

Q5504~Q5507 BURST GATE PULSE

Q5508~Q5511, Q5951, Q5952 BLK PULSE

Power cord
- BT-D2020PYG TSX3105
- BT-D2020PY TSX3104

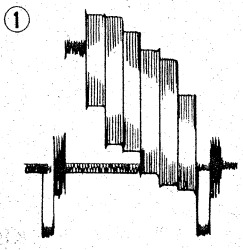
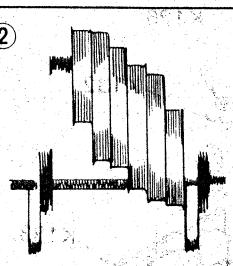
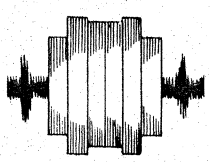
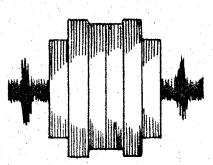
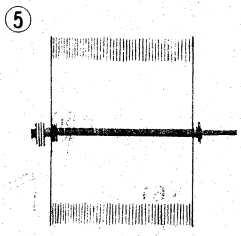
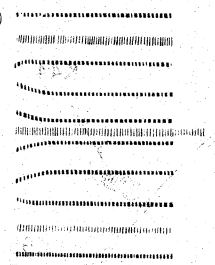
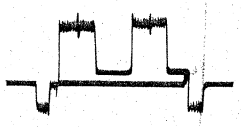
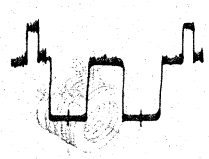
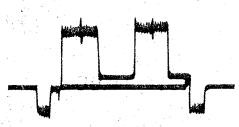
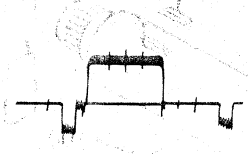
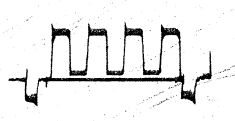
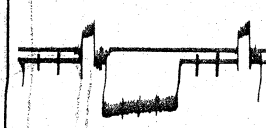
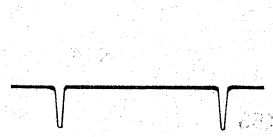
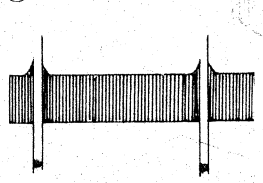
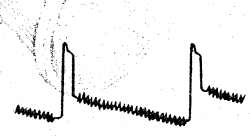
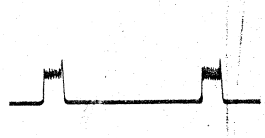
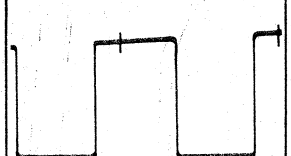
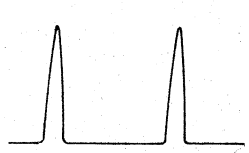
B-BOARD: TNP800507ZA
SIGNAL DISPOSITION CIRCUIT

L-BOARD TNP800460ZA
CRT DRIVE CIRCUIT

WAV

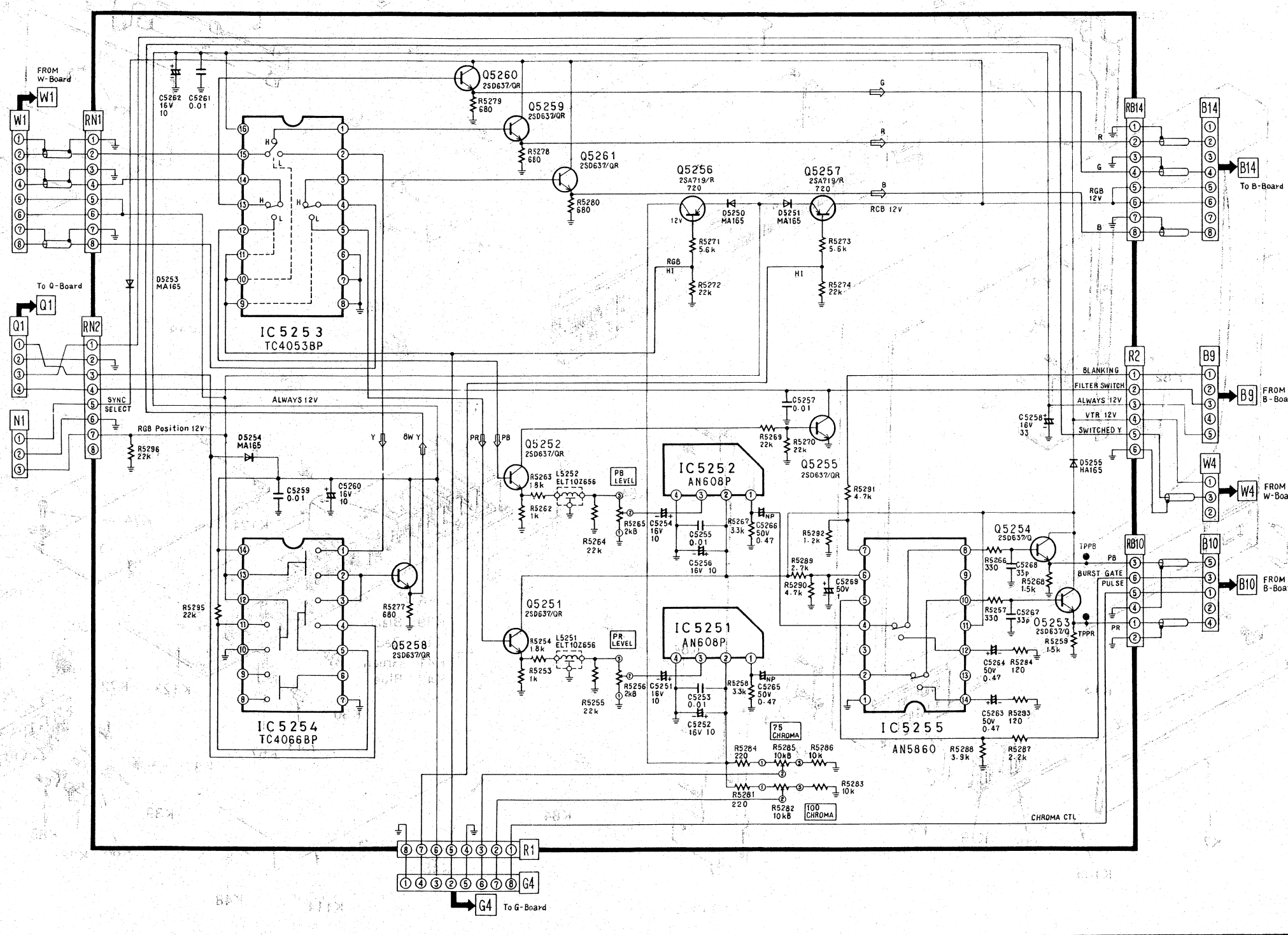
Power cord
- BT-D2020PYG TSX3105
- BT-D2020PY TSX3104

WAVEFORM PATTERN TABLE

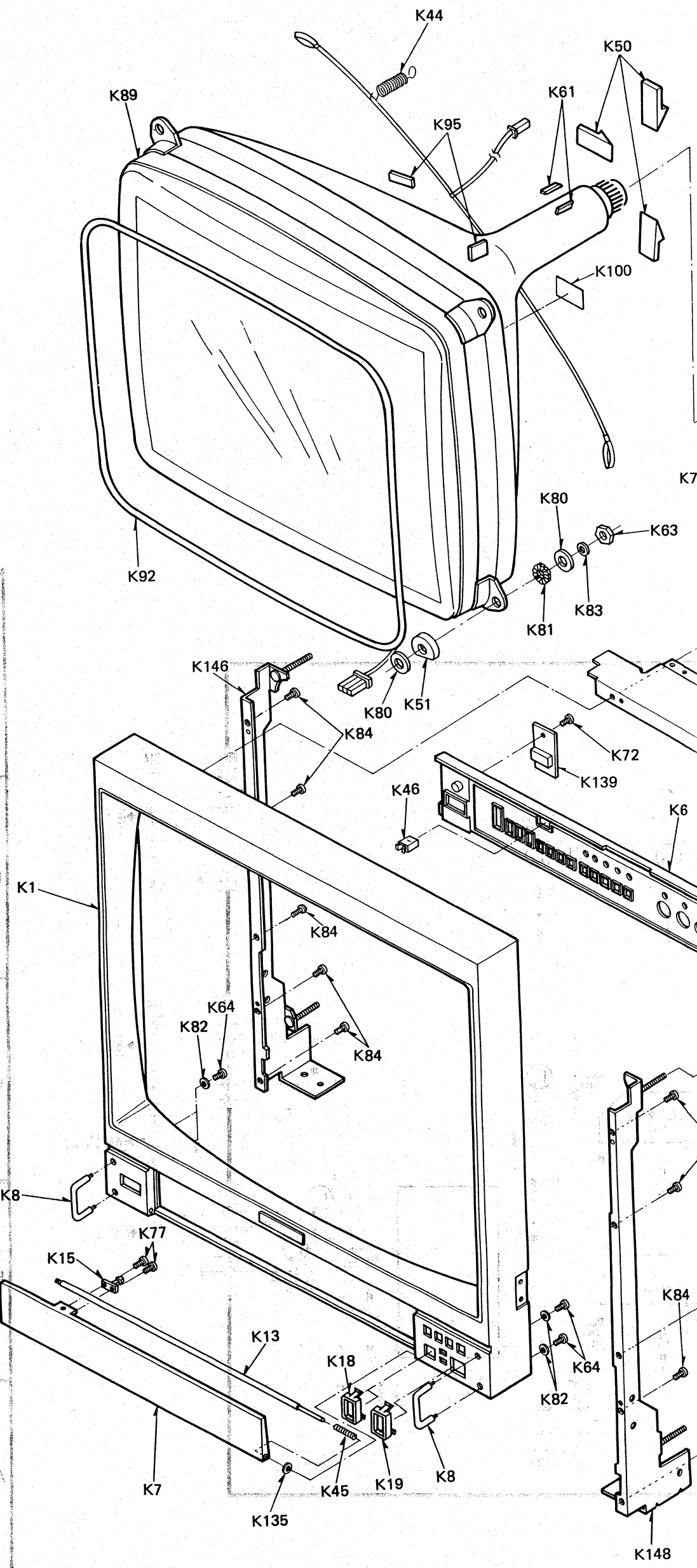
①  20μsec. div. 0.8Vp-p	②  20μsec. div 260mVp-p	③  20μsec. div. 280mVp-p	④  20μsec. div. 250mVp-p	⑤  5msec. div. 4.8Vp-p	⑥  5msec. div. 5.2Vp-p	⑦  20μsec. div. 1.5Vp-p	⑧  20μsec. div. 1.3Vp-p
⑨  20μsec. div. 1Vp-p	⑩  20μsec. div. 0.8Vp-p	⑪  20μsec. div. 0.8Vp-p	⑫  20μsec. div. 0.8Vp-p	⑬  20μsec. div. 0.7Vp-p	⑭  20μsec. div. 0.8Vp-p	⑮  20μsec. div. 40Vp-p	⑯  20μsec. div. 40Vp-p
⑰  20μsec. div. 40Vp-p	⑱  5msec. div. 4.7Vp-p	⑲  5msec. div. 2Vp-p	⑳  5msec. div. 52Vp-p	㉑  20μsec. div. 1.2Vp-p	㉒  20μsec. div. 12.5Vp-p	㉓  20μsec. div. 1000Vp-p	

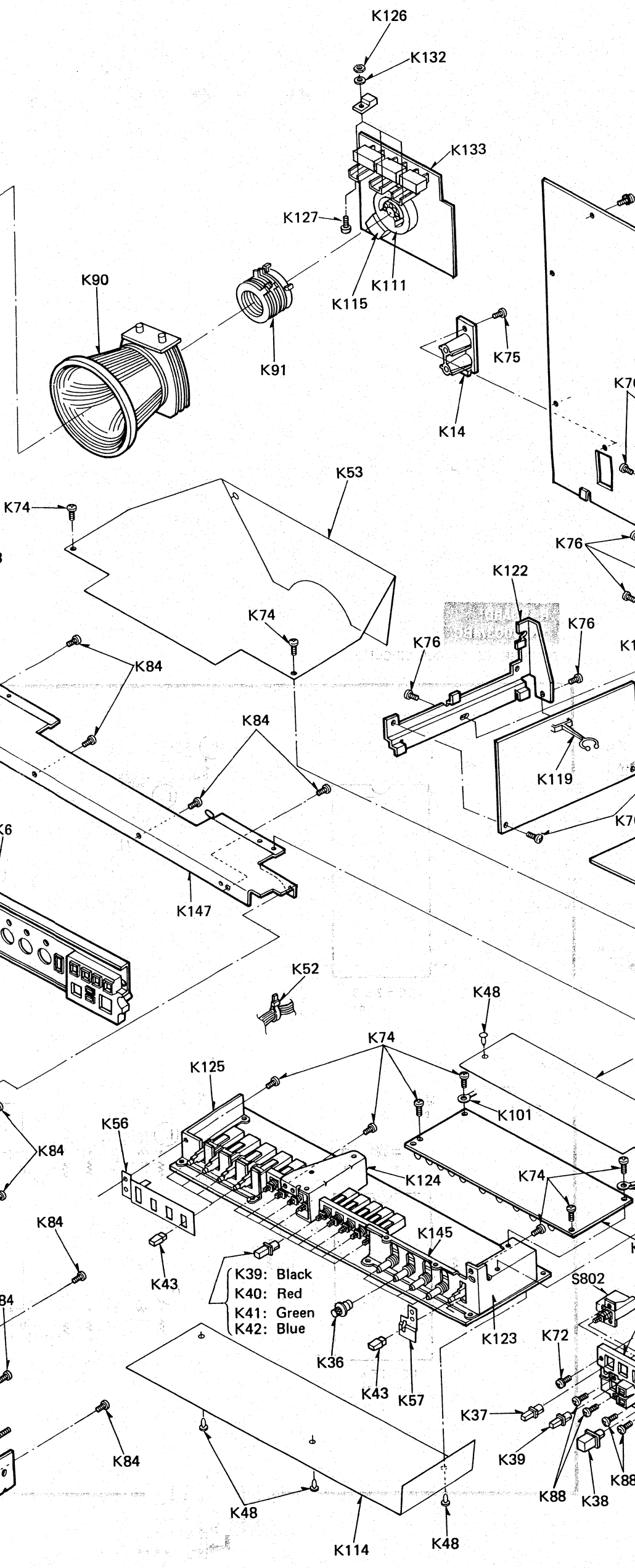
R-BOARD:
TNP800374BC

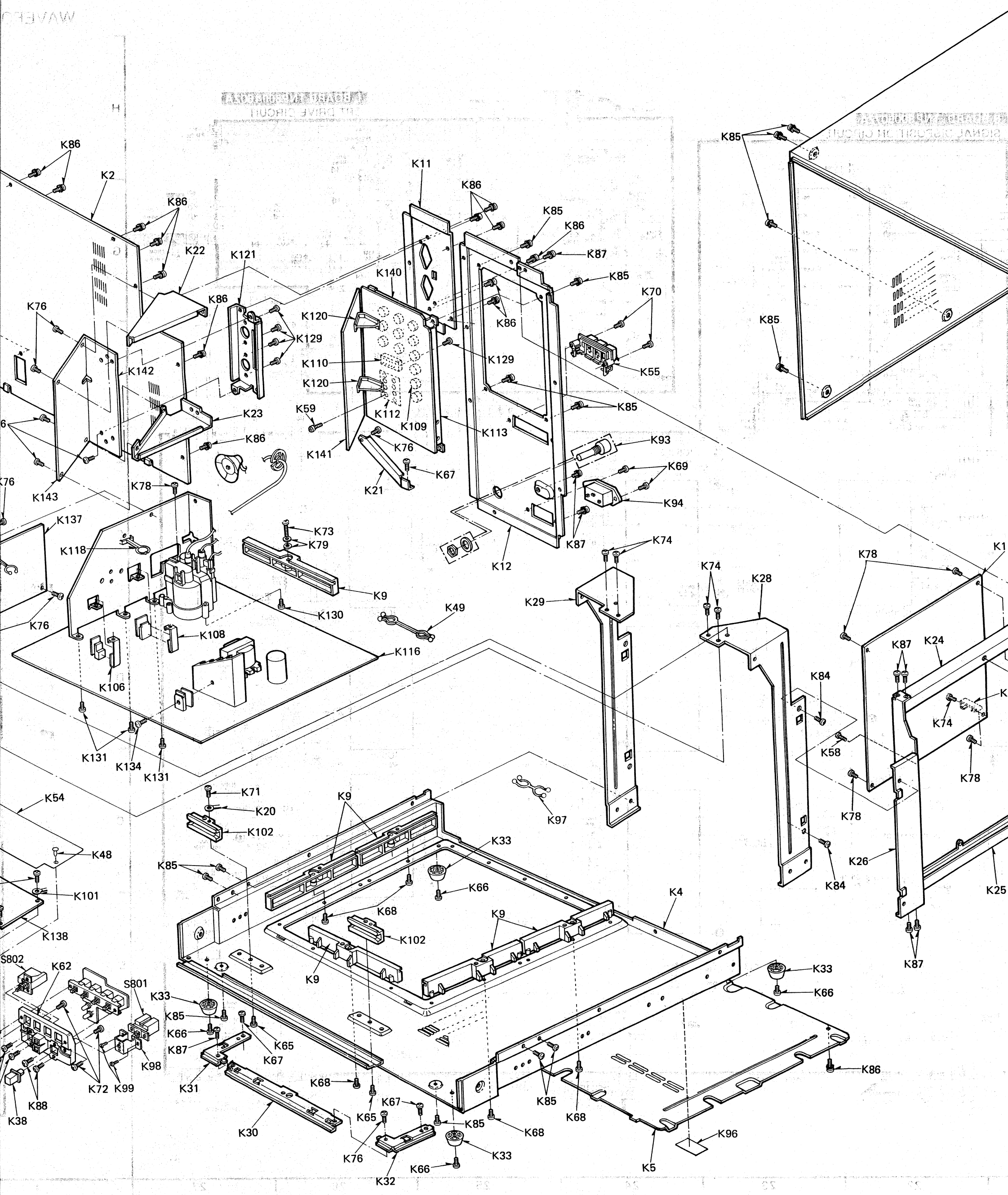
DIFFERENCE COLOUR CIRCUIT



EXPLODED VIEWS



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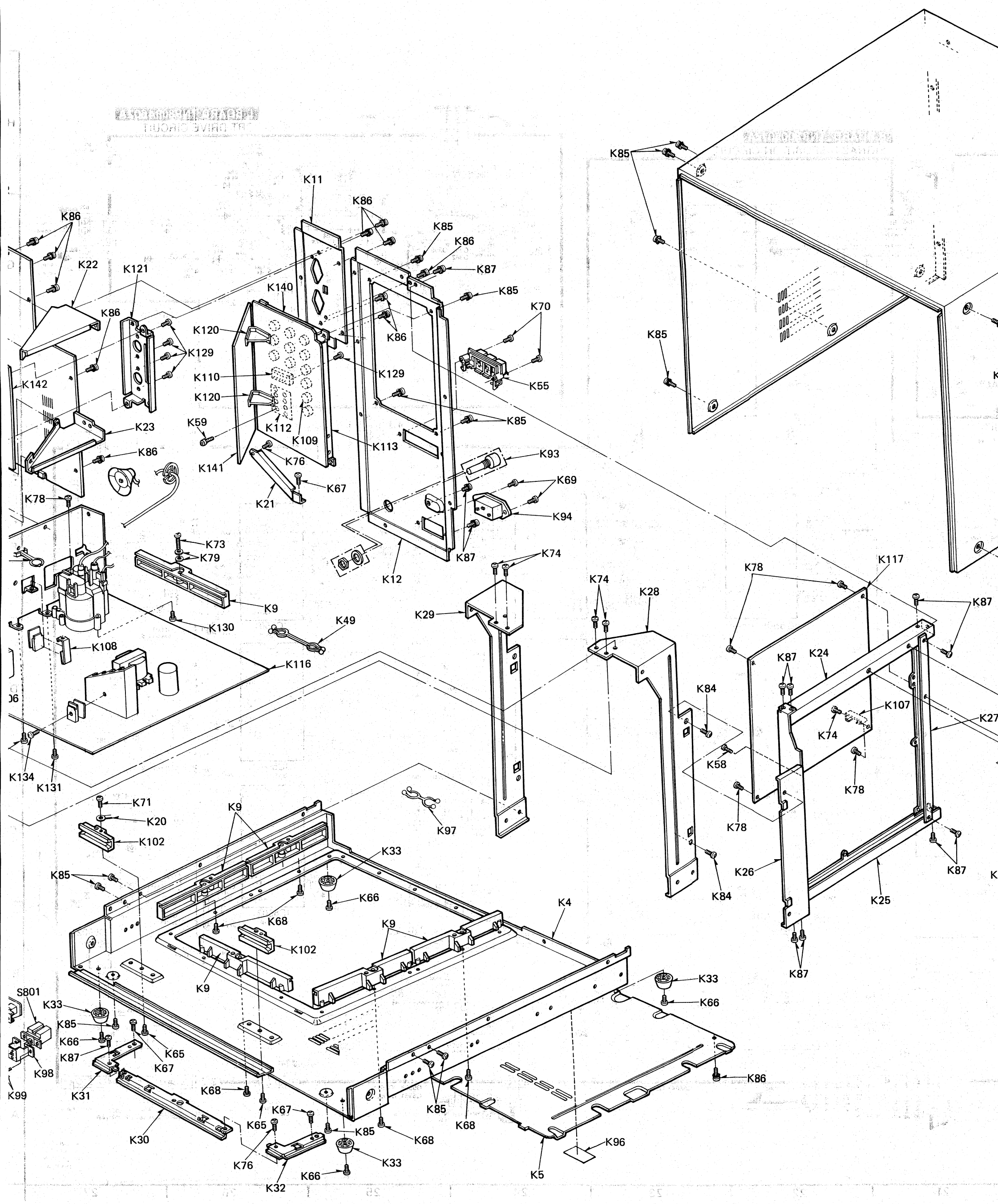
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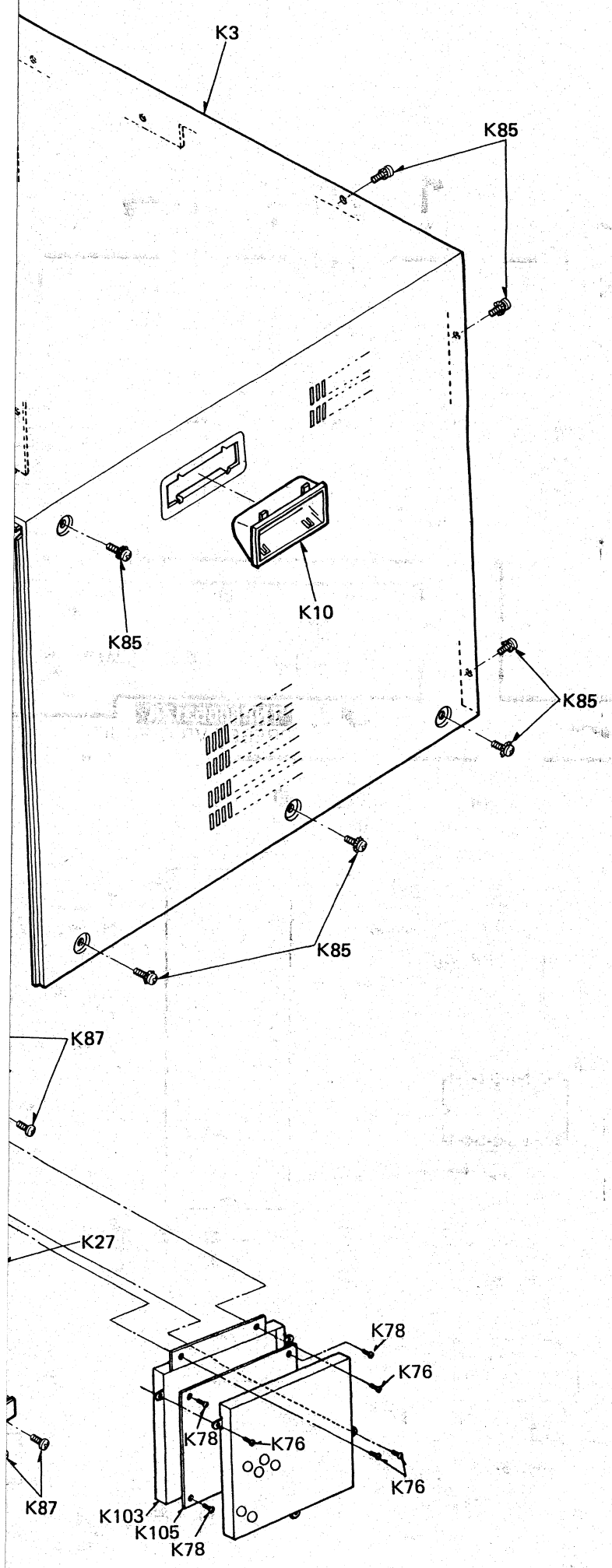

REPLACEMENT PARTS LIST

Important Safety Notice

Components identified by the International symbol ⚠ have special characteristics important for safety.
When replacing any of these components use only manufacture's specified Parts.

Abbreviation of Part Name and Description

1. Resistor

Example:

ERD25TJ104 C 100KOHM, J, 1/4W
TYPE ALLOWANCE

TYPE	ALLOWANCE
C : Carbon	F : ±1%
F : Fuse	G : ±2%
M : Metal Oxide	J : ±5%
Metal Film	K : ±10%
S : Solid	M : ±20%
W : Wire Wound	

2. Capacitor

Example:

ECKF1H103ZF C 0.01PF, Z, 50V
TYPE ALLOWANCE

TYPE	ALLOWANCE
C : Ceramic	C : ±0.25 pF
E : Electrolytic	D : ±0.5 pF
P : Polyester	F : ±1 pF
PP : Polypropylene	J : ±5%
S : Styrol	K : ±10%
T : Tantalum	L : ±15%
	M : ±20%
	P : ±100%,–0%
	Z : ±80%,–20%

Note: For Y○○ of Ref. No., not indicate illustration of it part on "Exploded Views".

	Ref.No.	Part No.	Description
			CABINET & MAIN PARTS
	K1	TKE8705L	ESCUTCHEON
⚠	K2	TKU835707	REAR COVER
	K3	TKC871102-3	TRUNK PLATE
	K4	TKC871302	BOTTOM PLATE
	K5	TKC879901	BOTTOM PLATE COVER
	K6	TKP8710021-2	CONTROL PANEL ASSY
	K7	TKP8750033	DOOR
	Y1	TKR87040	BRACKET(L)
	K8	TKR87050	HANDLE
	Y2	TKR87060	BRACKET(R)
⚠	K102	TKX822101	P.W. BOARD HOLDER (SMALL)
⚠	K9	TKX853101	P.W. BOARD HOLDER (BIG)
	K10	TKK69248-5	HANDLE(BLACK)
⚠	K12	TKK870407-3	TERMINAL BOARD BRACKET
	K13	TKK870408	DOOR SHAFT
	K11	TKK870412	S–VIDEO TERMINAL BRACKET
	K14	TKK870504	FBT VOLUME
	K15	TKK870505-2	DOOR CATCH
	Y3	TKK878403	RAIL BRACKET(A)
	Y4	TKK878404	RAIL BRACKET(B)
	Y5	TKK878405	RAIL BRACKET(C)
	Y6	TKK878406	RAIL BRACKET(D)
	K18	VGK1512	DEGAUSS BUTTON GUIDE
	K19	VGK1595	POWER BUTTON GUIDE
	K98	TUW87315N	POWER SWITCH BRACKET
	K101	TUX80701-2	CORD BRACKET(BIG)
	K20	TUX80971	CORD BRACKET
	K21	TUX87107	CHASSIS BRACKET
	K22	TUX87409	P.W. BOARD BRACKET (UPPER)
	K23	TUX87411	P.W. BOARD BRACKET(BOTTOM)
	K24	TUX87413-1	P.W. BOARD BRACKET(UPPER)
	K25	TUX87414	P.W. BOARD BRACKET(BOTTOM)
	K26	TUX87415-1	P.W. BOARD BRACKET

Ref.No.	Part No.	Description
K27	TUX87416-1	P.W. BOARD BRACKET (REAR)
K103	TUX87420	SHIELD BRACKET
K28	TUX87501-3	CRT BRACKET(R)
K29	TUX87502-3	CRT BRACKET(L)
K30	TUX87505	RAIL BRACKET(A)
K31	TUX87506	RAIL BRACKET(B)
K32	TUX87507	RAIL BRACKET(C)
K147	TKZ870205-1	CRT BRACKET(UPPER)
K146	TKZ870206-1	CRT BRACKET(L)
K148	TKZ870207-1	CRT BRACKET(R)
K33	TBL131303	SET LEG
K36	TBX8750201	KNOB(VOLUME)
K37	TBX8780400	PUSH BUTTON(B)
K39	TBX8780600	PUSH BUTTON(DEGAUSS)
K40	TBX8780601	PUSH BUTTON(RED)
K41	TBX8780602	PUSH BUTTON(GREEN)
K42	TBX8780603	PUSH BUTTON(BLUE)
K38	TBX8780800	PUSH BUTTON(POWER)
K43	TBX8790300	LEVER KNOB
K44	TES4211	COIL SPRING
K45	TES8298	SPRING
K46	TEK17918	SWITCH
Y7	TMM1455	BEADS BAND
K48	TMM1459	CLIP
K97	TMM16422	W.CLAMPER
Y8	TMM16473-1	CLAMPER
K49	TMM17474	DOUBLE CLAMPER
K50	TMM17553	DY WEDGE
K51	TMM407-4	CRT RUBBER
Y9	TMM6463	CLAMPER
Y10	TMM7468	CLAMPER
K52	TMM81416	CORD BAND(SMALL)
Y11	TMM81417	CORD BAND(BIG)
Y12	TMM83403	DNK CLAMPER
Y13	TMM85461	BARRIER
Y14	TMM85552	CRT RUBBER
Y15	TMK81751	DOOR SHAFT HOLDER

	Ref.No.	Part No.	Description
	Y16	TMK84718	SOFT TAPE
	Y17	TMK84719	SOFT TAPE
⚠	K53	TMK87511-2	ANODE BARRIER
⚠	K54	TMK87512	VOLUME P.W.B. BARRIER
	K56	TMK87516-2	KNOB COVER(A)
	K57	TMK87517	KNOB COVER(B)
	K135	TMK87905	SPACER
	K136	TMK87906	CUSHION
	K61	TXFMK01H55	PARMALLOY
⚠	K62	TMW87302-1	POWER BRACKET
	K63	XNG5BS	NUT
	K64	XSN4+16FZ	SCREW
	K65	XTB4+12B	SCREW
	K66	XTB4+14BFZ	SCREW
	K67	XTB4+20A	SCREW
	K68	XTB4+20AFZ	SCREW
	K69	XTS3+10BFZ	SCREW
	K70	XTV3+10AFZ	SCREW
	K71	XTV3+10G	SCREW
	K72	XTV3+12G	SCREW
	K73	XTV3+25B	SCREW
	K74	XTV3+6J	SCREW
	K75	XTV3+6JFZ	SCREW
	K76	XTV3+8J	SCREW
	K77	XTV3+8JFZ	SCREW
	K78	XTW3+8T	SCREW
	K79	XWA3B	WASHER
	K80	XWA5B	WASHER
	K81	XWC5C	WASHER
	K82	XWG4	WASHER
	K83	XWG5H14	WASHER
	K84	XYA4+EF8	SCREW
	K85	XYA4+EF8FC	SCREW
	K86	XYA4+EJ12FZ	SCREW
	K87	XYE3+EF8	SCREW
	K58	XYE3+EJ10	SCREW
	K99	XYN3+C6	SCREW
	K88	XYN3+C8	SCREW
⚠	K89	M48JFB05X	PICTURE TUBE
⚠	K140	TNP100463BC	P.W. BOARD W/COMPONENT (G)
	K137	TNP100467ZB	P.W. BOARD W/COMPONENT (D)
⚠	K141	TNP100677BD	P.W. BOARD W/COMPONENT (W)
	K144	TNP800334ZA	P.W. BOARD W/COMPONENT(CN3)
	K139	TNP800335ZB	P.W. BOARD W/COMPONENT (T)
	K105	TNP800374BC	P.W. BOARD W/COMPONENT (R)
⚠	K133	TNP800460ZA	P.W. BOARD W/COMPONENT (L)
⚠	K117	TNP800507ZA	P.W. BOARD W/COMPONENT (B)
⚠	K138	TNP800520ZA	P.W. BOARD W/COMPONENT (C)
	K145	TNP800521ZA	P.W. BOARD W/COMPONENT(CN1)
	K142	TNP800540	P.W. BOARD W/COMPONENT (P)
⚠	K143	TNP800541ZA	P.W. BOARD W/COMPONENT (Q)
⚠	K116	TNP890244AB	P.W. BOARD W/COMPONENT (A)
⚠	K90	TLY85354F	DEFLECTION YOKE
	K91	TLC2024-2S	CONVERGENCE COIL
⚠	K92	TLK859062A	DEGAUSS COIL
⚠	Y20	TSX3104	POWER CORD (BT-D2020PY)
	Y21	TSX3105	POWER CORD (BT-D2020PYG)
⚠	K93	TJB13959	FUSE BOX
	K55	TJS8A8461	3P PUSH TERMINAL

	Ref.No.	Part No.	Description
⚠	K94	TJS828661	AC SOCKET
	Y23	TXAJTA3P1412	3P CONNECTOR ASSY
	Y24	TXAJTA3P1461	3P CONNECTOR ASSY
	Y25	TXAJTT1P216	1P CONNECTOR ASSY(L7)
	Y26	TXAJTT3P1416	3P CONNECTOR ASSY(B33)
	Y27	TXAJTT3P1462	3P CONNECTOR ASSY(B13)
	Y28	TXAJTV3P1419	3P CONNECTOR ASSY(B15)
⚠	S802	ESB8259V	SWITCH
⚠	S801	ESB99877V	SWITCH
⚠	F801	XBA2C31TROA	FUSE(3.1A)
	K95	TSN85511	MAGNET
	Y29	T4F72425Q	COTTON TAPE(55M)
	Y30	T4F80918-1	TAPE
	Y31	T4F90219-1	MAIRA TAPE(20M)
	Y32	TPC8840209	OUTER CARTON
	Y33	TPD379002-2	FILLER
	Y34	TPD379003	FILLER
	Y35	TXAPD1MFSZ	FILLER
	Y36	TPE174024	SET COVER
	Y37	TPE894013	SET COVER
	Y38	TPE894017	SET COVER
	Y39	XZBT6506	BAG
	Y40	XZB12X15C05	BAG (ACCESSORY)
⚠	Y41	TQB820001	INSTRUCTION BOOK
	Y42	TQF57221	POWER CORD LABEL (BT-D2020PYG)
⚠	Y43	TQD62996	S.V.C LIST
⚠	K100	TQF17667-1	X-LABEL
	K96	TQF80727	LABEL
⚠	K47	TQF81735	EARTH MARK LABEL

I.C

IC301	AN608P	INTEGRATED CIRCUIT
IC401	AN5435	INTEGRATED CIRCUIT
IC451	AN5521	INTEGRATED CIRCUIT
⚠ IC501	AN5790N	INTEGRATED CIRCUIT
⚠ IC551	TNH11303	CIRCUIT BOARD(HIC)
IC601	AN5625N	INTEGRATED CIRCUIT
IC602	TC4053BP	INTEGRATED CIRCUIT
IC761	AN614	INTEGRATED CIRCUIT
⚠ IC801	M5F7812	INTEGRATED CIRCUIT
IC802	AN78L20	INTEGRATED CIRCUIT
IC5001	TA7676AP	INTEGRATED CIRCUIT
IC5002	AN5860	INTEGRATED CIRCUIT
IC5003	TVSTC4066BP	INTEGRATED CIRCUIT
IC5201	AN608P	INTEGRATED CIRCUIT
IC5251	AN608P	INTEGRATED CIRCUIT
IC5252	AN608P	INTEGRATED CIRCUIT
IC5253	TC4053BP	INTEGRATED CIRCUIT
IC5254	TC4066BP	INTEGRATED CIRCUIT
IC5255	AN5860	INTEGRATED CIRCUIT
IC5301	TVSTC4066BP	INTEGRATED CIRCUIT
IC5302	TC4053BP	INTEGRATED CIRCUIT
IC5303	AN608P	INTEGRATED CIRCUIT
IC5304	AN608P	INTEGRATED CIRCUIT
IC5401	TVSBA236B	INTEGRATED CIRCUIT
IC5402	TVSTC4066BP	INTEGRATED CIRCUIT
IC5403	TVSBA236B	INTEGRATED CIRCUIT
IC5404	M51847P	INTEGRATED CIRCUIT
IC5501	M51392P	INTEGRATED CIRCUIT
IC5502	M51392P	INTEGRATED CIRCUIT
IC5503	M51392P	INTEGRATED CIRCUIT

	Ref.No.	Part No.	Description
	IC5504	TC4053BP	INTEGRATED CIRCUIT
	IC5506	AN5860	INTEGRATED CIRCUIT
	IC5601	TVSTC4066BP	INTEGRATED CIRCUIT
	IC5901	M5F7812	INTEGRATED CIRCUIT
	IC5902	M5F7812	INTEGRATED CIRCUIT
		TRANSISTORS	
	Q300	2SC1685Q	TRANSISTOR
	Q301	2SC1215S	TRANSISTOR
	Q302	2SC1684Q	TRANSISTOR
	Q303	2SC1684Q	TRANSISTOR
	Q304	2SC1684Q	TRANSISTOR
	Q305	2SC1684Q	TRANSISTOR
	Q306	2SC1684Q	TRANSISTOR
	Q307	2SC1684Q	TRANSISTOR
	Q308	2SD636R	TRANSISTOR
	Q309	2SK83R	TRANSISTOR
	Q310	2SC1685Q	TRANSISTOR
	Q351	2SC3944A	TRANSISTOR
	Q352	2SC3944A	TRANSISTOR
	Q353	2SC3944A	TRANSISTOR
	Q354	2SA719Q	TRANSISTOR
	Q355	2SA719Q	TRANSISTOR
	Q356	2SA719Q	TRANSISTOR
	Q357	2SC3503	TRANSISTOR
	Q358	2SD1264Q	TRANSISTOR
	Q359	2SA879Q	TRANSISTOR
	Q360	2SD637R	TRANSISTOR
	Q361	2SD637R	TRANSISTOR
	Q362	2SD637R	TRANSISTOR
	Q450	2SD636R	TRANSISTOR
	Q501	UN1212	TRANSISTOR
	Q503	2SC1683Q	TRANSISTOR
	Q505	2SD637R	TRANSISTOR
	Q550	2SD1732	TRANSISTOR
	Q580	2SD1264AQLB	TRANSISTOR
	Q581	2SB940Q	TRANSISTOR
	Q601	2SC1684Q	TRANSISTOR
	Q602	UN1212	TRANSISTOR
	Q605	2SC1684Q	TRANSISTOR
	Q606	2SC1684Q	TRANSISTOR
	Q751	2SD637R	TRANSISTOR
	Q752	2SB642Q	TRANSISTOR
	Q755	2SC1573ANC	TRANSISTOR
	Q756	2SD637R	TRANSISTOR
	Q757	2SD638R	TRANSISTOR
	Q758	2SC1573QNC	TRANSISTOR
	Q762	2SB750	TRANSISTOR
⚠	Q801	2SD1391	TRANSISTOR
⚠	Q802	2SA900R	TRANSISTOR
⚠	Q803	2SD637R	TRANSISTOR
	Q804	2SC1383NC	TRANSISTOR
	Q5001	2SC1684Q	TRANSISTOR
	Q5003	2SC1684Q	TRANSISTOR
	Q5004	2SC1684Q	TRANSISTOR
	Q5005	2SC1215S	TRANSISTOR
	Q5006	2SC1684Q	TRANSISTOR
	Q5007	2SC1684Q	TRANSISTOR
	Q5101	2SC1685Q	TRANSISTOR
	Q5102	2SC1685Q	TRANSISTOR
	Q5103	2SD637R	TRANSISTOR

Ref.No.	Part No.	Description
Q5104	2SC1685Q	TRANSISTOR
Q5105	2SC1685Q	TRANSISTOR
Q5106	2SD637R	TRANSISTOR
Q5107	2SC1685Q	TRANSISTOR
Q5108	2SB641R	TRANSISTOR
Q5109	2SB641R	TRANSISTOR
Q5110	2SA564AQ	TRANSISTOR
Q5111	2SC1685Q	TRANSISTOR
Q5112	2SC1685Q	TRANSISTOR
Q5113	2SC1685Q	TRANSISTOR
Q5114	2SC1685Q	TRANSISTOR
Q5115	2SC1685Q	TRANSISTOR
Q5116	2SC1685Q	TRANSISTOR
Q5118	2SC1685Q	TRANSISTOR
Q5201	2SD637R	TRANSISTOR
Q5202	2SD637R	TRANSISTOR
Q5203	2SD637R	TRANSISTOR
Q5251	2SD637R	TRANSISTOR
Q5252	2SD637R	TRANSISTOR
Q5253	2SD637Q	TRANSISTOR
Q5254	2SD637Q	TRANSISTOR
Q5255	2SD637R	TRANSISTOR
Q5256	2SA719	TRANSISTOR
Q5257	2SA719	TRANSISTOR
Q5258	2SD637R	TRANSISTOR
Q5259	2SD637R	TRANSISTOR
Q5260	2SD637R	TRANSISTOR
Q5261	2SD637R	TRANSISTOR
Q5303	2SD637R	TRANSISTOR
Q5305	2SD636R	TRANSISTOR
Q5306	2SD637R	TRANSISTOR
Q5307	2SD637R	TRANSISTOR
Q5401	2SC1685Q	TRANSISTOR
Q5402	2SD637R	TRANSISTOR
Q5403	2SB641R	TRANSISTOR
Q5404	2SC1685Q	TRANSISTOR
Q5406	2SC1685Q	TRANSISTOR
Q5407	2SC1685Q	TRANSISTOR
Q5408	2SB641R	TRANSISTOR
Q5409	2SC1685Q	TRANSISTOR
Q5410	2SC1685Q	TRANSISTOR
Q5411	2SD637R	TRANSISTOR
Q5412	2SD637R	TRANSISTOR
Q5413	2SA564AQ	TRANSISTOR
Q5414	2SC1685Q	TRANSISTOR
Q5416	2SC1685Q	TRANSISTOR
Q5417	2SA564AQ	TRANSISTOR
Q5418	2SC1685Q	TRANSISTOR
Q5419	2SC1685Q	TRANSISTOR
Q5420	2SC1685Q	TRANSISTOR
Q5421	2SC1685Q	TRANSISTOR
Q5423	2SC1685Q	TRANSISTOR
Q5501	2SA564AQ	TRANSISTOR
Q5502	2SA564AQ	TRANSISTOR
Q5503	2SA564AQ	TRANSISTOR
Q5504	2SD637R	TRANSISTOR
Q5505	2SA564AQ	TRANSISTOR
Q5506	2SD637R	TRANSISTOR
Q5507	2SA564AQ	TRANSISTOR
Q5508	2SC1685Q	TRANSISTOR
Q5509	2SB641R	TRANSISTOR
Q5510	2SD637R	TRANSISTOR

	Ref.No.	Part No.	Description
	Q5511	2SA564AQ	TRANSISTOR
	Q5512	2SC1685Q	TRANSISTOR
	Q5513	2SC1685Q	TRANSISTOR
	Q5514	2SD637R	TRANSISTOR
	Q5553	2SD637R	TRANSISTOR
	Q5554	2SB642Q	TRANSISTOR
	Q5601	2SC1215S	TRANSISTOR
	Q5602	2SC1215S	TRANSISTOR
	Q5603	2SC1215S	TRANSISTOR
	Q5604	2SD637R	TRANSISTOR
	Q5605	2SC1215S	TRANSISTOR
	Q5606	2SC1215S	TRANSISTOR
	Q5607	2SC1215S	TRANSISTOR
	Q5609	2SD637R	TRANSISTOR
	Q5610	2SD637R	TRANSISTOR
	Q5611	2SD637R	TRANSISTOR
	Q5801	2SD637R	TRANSISTOR
	Q5802	2SD1264PLB	TRANSISTOR
	Q5803	2SA564AQ	TRANSISTOR
	Q5951	2SC1685Q	TRANSISTOR
	Q5952	2SC1685Q	TRANSISTOR
	Q5953	2SC1685Q	TRANSISTOR
		DIODES	
	D301	MA4082M	DIODE
	D351	MA165	DIODE
	D352	MA165	DIODE
	D353	MA165	DIODE
	D354	MA4180	DIODE.SI
	D355	TVSRU1	DIODE
	D358	MA165	DIODE
	D359	TVSEU1A	DIODE
	D361	ERA22-04	DIODE.SI
	D362	MA4120M	DIODE.SI
	D364	MA165	DIODE
	D366	MA165	DIODE
	D368	MA165	DIODE
	D372	MA4150M	DIODE.SI
	D402	MA166	DIODE.SI
	D404	MA165	DIODE
	D451	TVSEM1Z	DIODE.SI
	D510	MA150	DIODE
⚠	D553	RH4F	DIODE.SI
⚠	D554	RH4F	DIODE.SI
	D556	MA161	DIODE
	D557	TVSRF1A	DIODE.SI
	D558	TVSRU2AM	DIODE
	D559	MA182	DIODE
⚠	D561	TVSEM1Z	DIODE.SI
	D562	MA182	DIODE
	D563	MA4360H	DIODE.SI
	D622	MA27QB	DIODE
	D755	MA4091M	DIODE.SI
	D756	MA165	DIODE
	D757	MA4030M	DIODE.SI
	D771	MA162	DIODE
⚠	D801	TVSC0508	DIODE.SI
⚠	D802	TVSC0508	DIODE.SI
⚠	D803	TVSC0508	DIODE.SI
⚠	D804	TVSC0508	DIODE.SI
⚠	D805	ERPF5B0M120F	POSISTOR
⚠	D807	TVSES1Z	DIODE.SI

	Ref.No.	Part No.	Description
⚠	D808	TVSES1	DIODE
	D810	TVSQA206D	DIODE.SI
	D811	TVSEH1Z	DIODE.SI
	D812	TVSEH1Z	DIODE.SI
	D815	TVSRU2AM	DIODE
	D816	TVSRU2AM	DIODE
	D817	TVSRU2AM	DIODE
	D818	TVSRU2AM	DIODE
	D819	TVSRU2AM	DIODE
	D822	TVSRU2AM	DIODE
	D825	ERTD7FFK8R0	THERMISTOR
	D5001	MA154WA	DIODE
	D5010	MA4150M	DIODE.SI
	D5061	MA165	DIODE
	D5110	MA165	DIODE
	D5120	MA4150H	DIODE.SI
	D5201	0A90AG	DIODE.SI
	D5202	0A90AG	DIODE.SI
	D5203	MA150	DIODE
	D5204	MA150	DIODE
	D5250	MA165	DIODE
	D5251	MA165	DIODE
	D5252	MA165	DIODE
	D5253	MA165	DIODE
	D5254	MA165	DIODE
	D5255	MA165	DIODE
	D5302	MA165	DIODE
	D5303	MA27WB	DIODE
	D5304	MA27WB	DIODE
	D5305	MA154WA	DIODE
	D5401	0A90AM	DIODE.SI
	D5402	0A90AM	DIODE.SI
	D5403	MA4030	DIODE.SI
	D5404	0A90AM	DIODE.SI
	D5405	MA165	DIODE
	D5406	MA165	DIODE
	D5471	MA165	DIODE
	D5472	MA165	DIODE
	D5473	MA4062M	DIODE
	D5474	MA4062M	DIODE
	D5475	MA165	DIODE
	D5501	MA29QB	DIODE.SI
	D5502	MA29QB	DIODE.SI
	D5503	MA29QB	DIODE.SI
	D5505	MA165	DIODE
	D5506	MA4051M	DIODE
	D5507	MA165	DIODE
	D5508	MA165	DIODE
	D5509	MA165	DIODE
	D5510	MA165	DIODE
	D5511	MA165	DIODE
	D5512	MA4120H	DIODE.SI
	D5513	MA4120H	DIODE.SI
	D5515	MA4120H	DIODE.SI
	D5517	MA4120H	DIODE.SI
	D5520	MA165	DIODE
	D5541	MA4024H	DIODE.SI

	Ref.No.	Part No.	Description
	D5542	MA165	DIODE
	D5542	MA29QB	DIODE.SI
	D5544	MA182	DIODE
	D5551	MA165	DIODE
	D5552	MA165	DIODE
	D5553	MA165	DIODE
	D5594	MA115OM	DIODE
	D5595	MA415OM	DIODE.SI
	D5601	OA9OAG	DIODE.SI
	D5602	OA9OAG	DIODE.SI
	D5603	OA9OAG	DIODE.SI
	D5604	MA415OH	DIODE.SI
	D5650	OA9OAG	DIODE.SI
	D5651	OA9OAG	DIODE.SI
	D5652	OA9OAG	DIODE.SI
	D5653	MA165	DIODE
	D5654	MA15O	DIODE
	D5655	MA165	DIODE
	D5656	MA165	DIODE
	D5657	MA165	DIODE
	D5658	MA165	DIODE
	D5659	MA165	DIODE
	D5801	LN31CPHLUGS	DIODE(LED)
	D5802	LN31CPHLUGS	DIODE(LED)
	D5804	MA165	DIODE
	D5805	MA17O	DIODE
	D5806	MA17O	DIODE
	D5807	MA42OO	DIODE.SI
	D5808	LNO6O3YP4	DIODE(LED)
	D5812	OA9OAG	DIODE.SI
	D5814	MA182	DIODE
	D5815	MA4O36M	DIODE.SI
	D5950	MA165	DIODE
	D5951	MA165	DIODE
	D5952	MA165	DIODE
	D5953	MA165	DIODE
	D5954	MA165	DIODE
	D5956	MA165	DIODE
	D5957	MA165	DIODE
	D5958	MA165	DIODE
	D5959	MA165	DIODE
	D5962	MA182	DIODE

COIL & TRANSFORMERS

	Ref.No.	Part No.	Description
	L3O1	ELT1OZ644	COIL TRANS
	L3O2	ELT1OZ511	COIL TRANS
	L3O3	ELT1OZ511	COIL TRANS
	L3O4	TSC925-4	FERRITE CORE
	L351	TLT1R5J991	PEAKING COIL
	L352	TLT1R5J991	PEAKING COIL
	L353	TLT1R5J991	PEAKING COIL
	L4O1	TLQ181K126	PEAKING COIL
⚠	L552	ELH5L726	COIL
	L553	TLT1OOK119C	PEAKING COIL
	L561	TSC925-4	FERRITE CORE
	L562	TSC925-4	FERRITE CORE
	L580	ELC18BO1O	CHOKE COIL
	L6O1	TLT15OJ991K	PEAKING COIL
	L6O2	TLT12OJ991K	PEAKING COIL
	L6O5	TLTO82J991K	PEAKING COIL
	L6O6	EFDEN645A11G	DELAY LINE
	L6O7	TLK158066	DEGAUSS COIL
	L6O8	TLT82OJ991K	PEAKING COIL
	L61O	TLT82OJ991K	PEAKING COIL
	L611	TLT22OJ991K	PEAKING COIL
⚠	L751	TLH13711	CHOKE COIL
⚠	L801	ELF18D65OK	LINE FILTER
⚠	L802	ELF18D65OK	LINE FILTER
⚠	L805	ELC12BOO2	CHOKE COIL
	L5004	TLK61008-1	DEGAUSS COIL
	L5201	ELT1OZ522	COIL TRANS
	L5251	ELT1OZ656	COIL TRANS
	L5252	ELT1OZ656	COIL TRANS
	L5402	TLT272J991	PEAKING COIL
	LC5001	TLK66056-1	DEGAUSS COIL
⚠	T501	ETH19K52AY	TRANS
⚠	T551	TLF84202B	FLYBACK TRANS
⚠	T801	ETS49K423A	TRANS
⚠	T802	ETE16Z29AY	TRANS

CAPACITORS

	Ref.No.	Part No.				
	C301	ECEA1HN4R7S	E	4.7UF		5OV
	C302	ECEA1CU1O1	E	1OOUF		16V
	C303	ECEA1HFS2R2	E	2.2UF		5OV
	C305	ECEA1CU331	E	33OUF		16V
	C306	ECEA1CFS47O	E	47UF		16V
	C307	ECCF1H39OJC	C	39PF	J	5OV
	C308	ECEA1EN4R7S	E	4.7UF		25V
	C309	ECKF1H1O3ZF	C	0.01UF	Z	5OV
	C351	ECCF1H471J	C	47OPF	J	5OV
	C352	ECCF1H471J	C	47OPF	J	5OV
	C353	ECCF1H471J	C	47OPF	J	5OV
	C354	ECEA1HUO1O	E	1UF		5OV
	C355	ECEA1HGE01O	E	1UF		5OV
	C356	ECKC3D1O2JBN	C	1OOOPF	J	2KV
	C357	ECKD2H1O3PU	C	0.01UF	P	5OOV
	C358	ECEA2DS1OO	E	1OUF		2OOV
	C359	ECEA1HGE01O	E	1UF		5OV
	C360	ECEA2AU4R7	E	4.7UF		1OOV
	C361	ECEA2AU3R3	E	3.3UF		1OOV
	C362	ECEA2AU4R7	E	4.7UF		1OOV
	C363	ECEA2ES2R2	E	2.2UF		25OV
	C364	ECEA2ESO1O	E	1UF		25OV
	C365	ECEA1CGE1OO	E	1OUF		16V
	C401	ECQM1H273JZ	P	0.027UF	J	5OV
	C402	ECEA1CU221	E	22OUF		16V
	C403	ECSF16E3R3Y	T	3.3UF		16V
	C404	ECSF16E3R3Y	T	3.3UF		16V
	C405	ECEA1CN1O1S	E	1OOUF		16V
	C406	ECQM1H563JV	P	0.056UF	J	5OV
	C411	ECKF1H1O3ZF	C	0.01UF	Z	5OV
	C45O	ECEA1VU1OO	E	1OUF		35V
	C451	ECEA1HNO1OS	E	1UF		5OV
	C452	ECEA1VU1O1	E	1OOUF		35V
	C453	ECQM1H1O4JV	P	O.1UF	J	5OV
	C454	ECKD2H182KB2	C	18OOPF	K	5OOV
	C455	ECQM1473KZ	P	0.047UF	K	1OOV
	C456	ECEA1HFS2R2	E	2.2UF		5OV
	C457	ECEA1VFS1OO	E	1OUF		35V
	C458	ECEA1EU222	E	22OOUF		25V
	C459	ECEA1VU471	E	47OUF		35V
	C46O	ECEA1HFS4R7	E	4.7UF		5OV
	C5O1	ECEA1HUO1O	E	1UF		5OV

	Ref.No.	Part No.	Description				Ref.No.	Part No.	Description			
	C502	ECEA1HU4R7	E	4.7UF		50V	C751	ECQM1H124JZ	P	0.12UF	J	50V
	C503	ECQM1H333JV	P	0.033UF	J	50V	C752	ECQM1H124JZ	P	0.12UF	J	50V
	C504	ECQM1H473JZ	P	0.047UF	J	50V	C753	ECQV1H474JZ	P	0.47UF	J	50V
	C505	ECQM1H103JV	P	0.01UF	J	50V	C754	ECCF1H181J	C	180PF	J	50V
	C508	ECEA1CU101	E	100UF		16V	C755	ECEA1EU470	E	47UF		25V
	C509	ECEA1CU100	E	10UF		16V	C756	ECEA1AU471	E	470UF		10V
	C510	ECQM1H682JZ	P	6800PF	J	50V	C757	ECEA1VGE331	E	330UF		35V
	C512	ECEA1HU010	E	1UF		50V	C758	ECEA1CU470	E	47UF		16V
	C513	ECQK1122JZ	P	1200PF	J	100V	C759	ECEA63W22Q	E	22UF		63V
	C514	ECQM1H183JZ	P	0.018UF	J	50V	C761	ECEA1EU100	E	10UF		25V
	C516	ECQM1H682JZ	P	6800PF	J	50V	C762	ECEA1CU220	E	22UF		16V
	C521	ECEA1EU101	E	100UF		25V	C763	ECKF1H103ZF	C	0.01UF	Z	50V
	C522	ECKF1H152KB	C	1500PF	K	50V	C764	ECEA1CU100	E	10UF		16V
	C523	ECEA1JU101	E	100UF		63V	C765	ECEA1CU101	E	100UF		16V
	C525	ECCF1H560J	C	56PF	J	50V	C766	ECEA1VU220	E	22UF		35V
	C532	ECEA1EU4R7	E	4.7UF		25V	C767	ECQM1H392JZ	P	3900PF	J	50V
	C540	ECEA2EN010	E	1UF		250V	C768	ECEA1HN220S	E	22UF		50V
⚠	C551	ECWH15H182JD	PP	1800PF	J	1.5KV	⚠ C801	ECQU2A473MN	PP	0.047UF	M	250V
⚠	C552	ECWH15H222JD	PP	2200PF	J	1.5KV	⚠ C802	ECQU2A473MN	PP	0.047UF	M	250V
⚠	C556	ECKD2H222KB2	C	2200PF	K	500V	⚠ C805	ECKD2H472PU	C	4700PF	P	500V
	C561	ECWF2H824JZ	PP	0.82UF	J	500V	⚠ C806	ECKD2H472PU	C	4700PF	P	500V
⚠	C562	ECWH15H222JD	PP	2200PF	J	1.5KV	⚠ C808	ECES2GH221	E	220UF		400V
⚠	C563	ECWH15H182JD	PP	1800PF	J	1.5KV	C809	ECEA1EFS330	E	33UF		25V
⚠	C565	ECQM4562KZ	P	5600PF	K	400V	C810	ECQM1H474JV	P	0.47UF	J	50V
⚠	C566	ECQM4682KZ	P	6800PF	K	400V	⚠ C811	ECKC3D471KBN	C	470PF	K	2KV
	C567	ECCF1H221JC	C	220PF	J	50V	⚠ C812	ECQM2103KZ	P	0.01UF	K	200V
	C568	ECQM1H333JV	P	0.033UF	J	50V	⚠ C815	ECKD2H472PU	C	4700PF	P	500V
	C569	ECQM1H683JV	P	0.068UF	J	50V	⚠ C817	ECKD2H472PU	C	4700PF	P	500V
	C570	ECQM1H154JV	P	0.15UF	J	50V	⚠ C820	ECKCNS472MEJ	C	4700PF	M	
	C573	ECEA1JU470	E	47UF		63V	C821	ECEA1EGE102	E	1000UF		25V
	C574	ECQM1H222JV	P	2200PF	J	50V	C826	ECKD2H102KB2	C	1000PF	K	500V
	C580	ECQM2224JZ	P	0.22UF	J	200V	C829	ECQM1H562JZ	P	5600PF	J	50V
	C581	ECQM1H472JZ	P	4700PF	J	50V	C831	ECKC3D561KBN	C	560PF	K	2KV
	C581	ECQM2104JZ	P	0.1UF	J	200V	C832	ECEA2ES330	E	33UF		250V
⚠	C590	ECWH15H182JD	PP	1800PF	J	1.5KV	C834	ECKD2H222KB2	C	2200PF	K	500V
	C601	ECCF1H220JC	C	22PF	J	50V	C835	ECEA1VU101	E	100UF		35V
	C602	ECCF1H470JC	C	47PF	J	50V	C836	ECKD2H222KB2	C	2200PF	K	500V
	C606	ECCF1H101JC	C	100PF	J	50V	C837	ECEA1CGE101	E	100UF		16V
	C607	ECCF1H220JC	C	22PF	J	50V	C838	ECKC3D561KBN	C	560PF	K	2KV
	C608	ECCF1H221JC	C	220PF	J	50V	C839	ECKD2H222KB2	C	2200PF	K	500V
	C609	ECCF1H221JC	C	220PF	J	50V	C840	ECKD2H222KB2	C	2200PF	K	500V
	C610	ECCF1H390JC	C	39PF	J	50V	C841	ECKD2H152KB2	C	1500PF	K	500V
	C611	ECQM1H103JV	P	0.01UF	J	50V	C842	ECEA2DG220S	E	22UF		200V
	C612	ECCF1H221JC	C	220PF	J	50V	C856	ECQM2154KZ	P	0.15UF	K	200V
	C613	ECQM1H273JZ	P	0.027UF	J	50V	C5002	ECKF1H103KB	C	0.01UF	K	50V
	C614	ECKF1H103ZF	C	0.01UF	Z	50V	C5003	ECEA1CFS470	E	47UF		16V
	C615	ECKF1H103ZF	C	0.01UF	Z	50V	C5004	ECCF1H680JC	C	68PF	J	50V
	C616	ECEA1HUR47	E	0.47UF		50V	C5005	ECCF1H680JC	C	68PF	J	50V
	C617	ECEA1CU220	E	22UF		16V	C5013	ECEA1CU221	E	220UF		16V
	C618	ECKF1H103ZF	C	0.01UF	Z	50V	C5018	ECCF1H470JC	C	47PF	J	50V
	C619	ECQM1H822JZ	P	8200PF	J	50V	C5019	ECEA1CFS470	E	47UF		16V
	C620	ECEA1HN3R3S	E	3.3UF		50V	C5020	ECKF1H223ZF	C	0.022UF	Z	50V
	C621	ECEA1HFSR15	E	0.15UF		50V	C5101	ECEA1CU101	E	100UF		16V
	C623	ECCF1H470JC	C	47PF	J	50V	C5102	ECKF1H103ZF	C	0.01UF	Z	50V
	C624	ECCF1H330JC	C	33PF	J	50V	C5104	ECEA1HFSR47	E	0.47UF		50V
	C625	ECCF1H121JC	C	120PF	J	50V	C5105	ECEA1HFSR47	E	0.47UF		50V
	C627	ECCF1H121JC	C	120PF	J	50V	C5106	ECKF1H103ZF	C	0.01UF	Z	50V
	C628	ECCF1H121JC	C	120PF	J	50V	C5107	ECEA1HFSR47	E	0.47UF		50V
	C630	ECCF1H121JC	C	120PF	J	50V	C5108	ECEA1HFSR47	E	0.47UF		50V
	C631	ECCF1H121JC	C	120PF	J	50V	C5109	ECEA1HUR47	E	0.47UF		50V
	C632	ECCF1H151JC	C	150PF	J	50V	C5110	ECEA1HUR47	E	0.47UF		50V
	C661	ECCF1H561J	C	560PF	J	50V	C5111	ECEA1HUR47	E	0.47UF		50V

Ref.No.	Part No.	Description				Ref.No.	Part No.	Description			
C5112	ECKF1H103ZF	C	0.01UF	Z	50V	C5414	ECQM1H224JZ	P	0.22UF	J	50V
C5115	ECEA1HFS010	E	1UF		50V	C5415	ECQM1H224JZ	P	0.22UF	J	50V
C5116	ECEA1HFS010	E	1UF		50V	C5416	ECEA1HN010S	E	1UF		50V
C5117	ECEA1HFS010	E	1UF		50V	C5423	ECCF1H121JC	C	120PF	J	50V
C5118	ECEA1HN010S	E	1UF		50V	C5425	ECQM1H183JZ	P	0.018UF	J	50V
C5119	ECEA1HN010S	E	1UF		50V	C5430	ECCF1H221J	C	220PF	J	50V
C5120	ECEA1HN010S	E	1UF		50V	C5471	ECQP1H471JZ	PP	470PF	J	50V
C5121	ECEA1CU101	E	100UF		16V	C5472	ECQM1H272JZ	P	2700PF	J	50V
C5122	ECKF1H103ZF	C	0.01UF	Z	50V	C5473	ECKF1H103ZF	C	0.01UF	Z	50V
C5123	ECEA1HU010	E	1UF		50V	C5474	ECKF1H103ZF	C	0.01UF	Z	50V
C5124	ECKF1H103ZF	C	0.01UF	Z	50V	C5475	ECQP1H122JZ	PP	1200PF	J	50V
C5125	ECEA1CU101	E	100UF		16V	C5476	ECQP1H391JZ	PP	390PF	J	50V
C5126	ECEA1HU010	E	1UF		50V	C5477	ECEA1CU330	E	33UF		16V
C5127	ECEA1HU010	E	1UF		50V	C5478	ECEA1CU101	E	100UF		16V
C5128	ECEA1HU010	E	1UF		50V	C5479	ECEA1CU330	E	33UF		16V
C5131	ECEA1HFSR47	E	0.47UF		50V	C5501	ECCF1H181JC	C	180PF	J	50V
C5132	ECEA1HU010	E	1UF		50V	C5502	ECCF1H181JC	C	180PF	J	50V
C5133	ECCF1H821J	C	820PF	J	50V	C5503	ECCF1H181JC	C	180PF	J	50V
C5134	ECEA1HUR47	E	0.47UF		50V	C5507	ECEA1CU101	E	100UF		16V
C5135	ECEA1HN010S	E	1UF		50V	C5508	ECEA1CU101	E	100UF		16V
C5141	ECEA1CU101	E	100UF		16V	C5509	ECEA1CU101	E	100UF		16V
C5142	ECEA1CU101	E	100UF		16V	C5513	ECEA1HFS010	E	1UF		50V
C5144	ECKF1H103ZF	C	0.01UF	Z	50V	C5514	ECEA1HFS010	E	1UF		50V
C5201	ECEA1CU330	E	33UF		16V	C5515	ECEA1HFS010	E	1UF		50V
C5202	ECEA1CU330	E	33UF		16V	C5516	ECKF1H103ZF	C	0.01UF	Z	50V
C5203	ECQM1H473JZ	P	0.047UF	J	50V	C5517	ECKF1H103ZF	C	0.01UF	Z	50V
C5204	ECEA1CU100	E	10UF		16V	C5518	ECKF1H103ZF	C	0.01UF	Z	50V
C5205	ECKF1H103ZF	C	0.01UF	Z	50V	C5525	ECKF1H103ZF	C	0.01UF	Z	50V
C5251	ECEA1CU100	E	10UF		16V	C5531	ECCF1H221JC	C	220PF	J	50V
C5252	ECEA1CU100	E	10UF		16V	C5532	ECCF1H470JC	C	47PF	J	50V
C5253	ECKF1H103ZF	C	0.01UF	Z	50V	C5533	ECCF1H221J	C	220PF	J	50V
C5254	ECEA1CU100	E	10UF		16V	C5534	ECCF1H221JC	C	220PF	J	50V
C5255	ECKF1H103ZF	C	0.01UF	Z	50V	C5535	ECKF1H103ZF	C	0.01UF	Z	50V
C5256	ECEA1CU100	E	10UF		16V	C5536	ECEA1CU330	E	33UF		16V
C5257	ECKF1H103ZF	C	0.01UF	Z	50V	C5601	ECEA1CKS470	E	47UF		16V
C5258	ECEA1CU330	E	33UF		16V	C5602	ECEA1CKS470	E	47UF		16V
C5259	ECKF1H103ZF	C	0.01UF	Z	50V	C5603	ECEA1CKS470	E	47UF		16V
C5260	ECEA1CU100	E	10UF		16V	C5604	ECCF1H561J	C	560PF	J	50V
C5261	ECKF1H103ZF	C	0.01UF	Z	50V	C5605	ECCF1H561J	C	560PF	J	50V
C5262	ECEA1CU100	E	10UF		16V	C5606	ECCF1H561J	C	560PF	J	50V
C5263	ECEA1HUR47	E	0.47UF		50V	C5608	ECKF1H103ZF	C	0.01UF	Z	50V
C5264	ECEA1HUR47	E	0.47UF		50V	C5609	ECEA1CU100	E	10UF		16V
C5265	ECEA1HNR47S	E	0.47UF		50V	C5651	ECEA1CKS470	E	47UF		16V
C5266	ECEA1HNR47S	E	0.47UF		50V	C5652	ECEA1CKS470	E	47UF		16V
C5267	ECCF1H330J	C	33PF	J	50V	C5653	ECEA1CKS470	E	47UF		16V
C5268	ECCF1H330J	C	33PF	J	50V	C5655	ECKF1H103ZF	C	0.01UF	Z	50V
C5269	ECEA1HU010	E	1UF		50V	C5656	ECKF1H103ZF	C	0.01UF	Z	50V
C5303	ECEA1CKS470	E	47UF		16V	C5657	ECKF1H103ZF	C	0.01UF	Z	50V
C5304	ECEA1CFS470	E	47UF		16V	C5660	ECCF1H471J	C	470PF	J	50V
C5305	ECEA1CU101	E	100UF		16V	C5702	ECEA1VFS100	E	10UF		35V
C5306	ECEA1AU102	E	1000UF		10V	C5703	ECEA1CU101	E	100UF		16V
C5310	ECCF1H561J	C	560PF	J	50V	C5704	ECEA1CU221	E	220UF		16V
C5401	ECEA1CN470S	E	47UF		16V	C5706	ECKF1H331KB	C	330PF	K	50V
C5402	ECEA1HN010S	E	1UF		50V	C5807	ECKF1H103ZF	C	0.01UF	Z	50V
C5405	ECEA1HU010	E	1UF		50V	C5808	ECKF1H103ZF	C	0.01UF	Z	50V
C5406	ECQM1H153JZ	P	0.015UF	J	50V	C5809	ECEA1CN100S	E	10UF		16V
C5407	ECQM1H153JZ	P	0.015UF	J	50V	C5851	ECKF1H103ZF	C	0.01UF	Z	50V
C5408	ECQM1H392JZ	P	3900PF	J	50V	C5852	ECKF1H103ZF	C	0.01UF	Z	50V
C5409	ECEA1HN010S	E	1UF		50V	C5853	ECKF1H103ZF	C	0.01UF	Z	50V
C5410	ECQP1H472JZ	PP	4700PF	J	50V	C5901	ECEA1CU472	E	4700UF		16V
C5411	ECQP1H222JZ	PP	2200PF	J	50V	C5902	ECEA1EU472	E	4700UF		25V
C5413	ECEA1HN010S	E	1UF		50V	C5954	ECQM1H562JZ	P	5600PF	J	50V

Ref.No.	Part No.	Description
C5955	ECQM1H273JZ	P 0.027UF J 50V
C5956	ECQM1H332JZ	P 3300PF J 50V
C5957	ECEA1CN100S	E 10UF 16V
C5958	ECQM1H182JZ	P 1800PF J 50V
	RESISTORS	
R301	ERDS2TJ101	C 100 OHM J 1/4W
R302	ERDS2TJ821	C 820 OHM J 1/4W
R303	ERD25FJ100K	C 10 OHM J 1/4W
R304	ERD25FJ102K	C 1K OHM J 1/4W
R305	ERDS2TJ102	C 1K OHM J 1/4W
R306	ERDS2TJ821	C 820 OHM J 1/4W
R307	ERDS2TJ101	C 100 OHM J 1/4W
R309	ERDS2TJ154	C 150K OHM J 1/4W
R310	ERDS2TJ561	C 560 OHM J 1/4W
R311	ERDS2TJ271	C 270 OHM J 1/4W
R312	ERDS2TJ561	C 560 OHM J 1/4W
R313	ERDS2TJ331	C 330 OHM J 1/4W
R314	ERDS2TJ561	C 560 OHM J 1/4W
R315	ERDS2TJ223	C 22K OHM J 1/4W
R316	ERDS2TJ103	C 10K OHM J 1/4W
R317	ERDS2TJ471	C 470 OHM J 1/4W
R318	ERDS2TJ331	C 330 OHM J 1/4W
R319	ERDS2TJ331	C 330 OHM J 1/4W
R320	ERDS2TJ561	C 560 OHM J 1/4W
R321	ERDS2TJ471	C 470 OHM J 1/4W
R322	ERDS2TJ272	C 2.7K OHM J 1/4W
R323	ERDS2TJ102	C 1K OHM J 1/4W
R324	EVM4HGA00B13	CONTROL B 1K OHM
R325	ERDS2TJ121	C 120 OHM J 1/4W
R326	EVM4HGA00B33	CONTROL B 3K OHM
R327	ERDS2TJ101	C 100 OHM J 1/4W
R328	ERDS2TJ101	C 100 OHM J 1/4W
R329	EVM4HGA00B13	CONTROL B 1K OHM
R330	ERDS2TJ332	C 3.3K OHM J 1/4W
R331	ERDS2TJ152	C 1.5K OHM J 1/4W
R333	ERD25FJ222K	C 2.2K OHM J 1/4W
R350	ERDS2TJ101	C 100 OHM J 1/4W
R354	ERDS2TJ121	C 120 OHM J 1/4W
R355	ERDS2TJ181	C 180 OHM J 1/4W
R356	ERDS2TJ121	C 120 OHM J 1/4W
R357	ERC12GJ561	S 560 OHM J 1/2W
R358	ERC12GJ561	S 560 OHM J 1/2W
R359	ERC12GJ561	S 560 OHM J 1/2W
R360	ERDS2TJ102	C 1K OHM J 1/4W
R361	ERDS2TJ821	C 820 OHM J 1/4W
R362	ERDS2TJ681	C 680 OHM J 1/4W
R363	EVM4HGA00B23	CONTROL B 2K OHM
R364	EVM4HGA00B23	CONTROL B 2K OHM
R365	EVM4HGA00B23	CONTROL B 2K OHM
R366	ERG5ZXJ472	M 4.7K OHM J 5W
R367	ERG5ZXJ472	M 4.7K OHM J 5W
R368	ERG5ZXJ472	M 4.7K OHM J 5W
R369	ERG1SJ681	M 680 OHM J 1W
R370	ERG1SJ681	M 680 OHM J 1W
R371	ERG1SJ681	M 680 OHM J 1W

Ref.No.	Part No.	Description
R373	ERG1SJ272	M 2.7K OHM J 1W
R374	ERDS1FJ102	C 1K OHM J 1/2W
R375	ERDS1FJ332	C 3.3K OHM J 1/2W
R376	ERDS2TJ104	C 100K OHM J 1/4W
R377	ERDS1FJ472	C 4.7K OHM J 1/2W
R378	ERDS2TJ334	C 330K OHM J 1/4W
R381	ERDS2TJ220	C 22 OHM J 1/4W
R384	ERDS2TJ563	C 56K OHM J 1/4W
R385	ERQ12HKR22	F 0.22 OHM K 1/2W
R386	ERDS2TJ101	C 100 OHM J 1/4W
R387	ERDS2TJ124	C 120K OHM J 1/4W
R388	ERDS2TJ333	C 33K OHM J 1/4W
R389	ERQ12HJ1R0	F 1 OHM J 1/2W
R390	ERDS2TJ101	C 100 OHM J 1/4W
R391	ERDS2TJ101	C 100 OHM J 1/4W
R392	ERQ1CJP1R0	F 1 OHM J 1W
R393	ERDS2TJ274	C 270K OHM J 1/4W
R394	ERC12GJ151	S 150 OHM J 1/2W
R395	EVM4HGA00B32	CONTROL B 300 OHM
R396	EVM4HGA00B32	CONTROL B 300 OHM
R397	ERDS1FJ221	C 220 OHM J 1/2W
R398	ERDS1FJ221	C 220 OHM J 1/2W
R399	ERDS1FJ221	C 220 OHM J 1/2W
R404	ERD25FJ220K	C 22 OHM J 1/4W
R408	ERDS2TJ562	C 5.6K OHM J 1/4W
R409	ERDS2TJ562	C 5.6K OHM J 1/4W
R410	ERDS2TJ561	C 560 OHM J 1/4W
R413	ERDS2TJ272	C 2.7K OHM J 1/4W
R444	ERDS2TJ102	C 1K OHM J 1/4W
R445	ERDS2TJ563	C 56K OHM J 1/4W
R446	ERDS2TJ123	C 12K OHM J 1/4W
R447	ERDS2TJ153	C 15K OHM J 1/4W
R448	ERDS2TJ103	C 10K OHM J 1/4W
R449	ERDS2TJ472	C 4.7K OHM J 1/4W
R450	ERDS2TJ102	C 1K OHM J 1/4W
R451	ERD25FJ153K	C 15K OHM J 1/4W
R452	ERDS2TJ153	C 15K OHM J 1/4W
R453	EVMK0GA00B14	CONTROL B 10K OHM
R454	ERDS2TJ152	C 1.5K OHM J 1/4W
R457	ERD25FJ562K	C 5.6K OHM J 1/4W
R458	ERDS1FJ1R5	C 1.5 OHM J 1/2W
R459	ERDS2TJ392	C 3.9K OHM J 1/4W
R460	ERDS2TJ392	C 3.9K OHM J 1/4W
R461	ERDS1FJ102	C 1K OHM J 1/2W
R501	ERDS2TJ152	C 1.5K OHM J 1/4W
R502	ERDS2TJ104	C 100K OHM J 1/4W
R503	ERDS2TJ332	C 3.3K OHM J 1/4W
R506	EVM4HGA00B14	CONTROL B 10K OHM
R508	ERDS2TJ333	C 33K OHM J 1/4W
R509	ERDS2TJ102	C 1K OHM J 1/4W
R510	ERDS2TJ393	C 39K OHM J 1/4W
R511	ERDS2TJ103	C 10K OHM J 1/4W
R512	ERDS2TJ821	C 820 OHM J 1/4W
R513	ERD25FJ102K	C 1K OHM J 1/4W
R514	ERDS2TJ103	C 10K OHM J 1/4W
R515	ERDS2TJ103	C 10K OHM J 1/4W
R516	ERDS2TJ102	C 1K OHM J 1/4W
R517	ERDS2TJ103	C 10K OHM J 1/4W
R518	ERDS2TJ272	C 2.7K OHM J 1/4W
R520	ERG1SJ101	M 100 OHM J 1W
R521	ERDS2TJ124	C 120K OHM J 1/4W
R524	ERF7ZJ151	W 150 OHM J 7W

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
R526	ERDS2TJ333	C 33K OHM J 1/4W	R661	ERDS2TJ152	C 1.5K OHM J 1/4W
R533	ERD25FJ103K	C 10K OHM J 1/4W	R662	ERDS2TJ472	C 4.7K OHM J 1/4W
R534	ERDS2TJ222	C 2.2K OHM J 1/4W	R671	ERDS2TJ221	C 220 OHM J 1/4W
R535	ERDS2TJ102	C 1K OHM J 1/4W	R750	ERD25FJ222K	C 2.2K OHM J 1/4W
R539	ERDS2TJ223	C 22K OHM J 1/4W	R751	ERDS2TJ103	C 10K OHM J 1/4W
R541	ERD25FJ103K	C 10K OHM J 1/4W	R752	ERDS2TJ124	C 120K OHM J 1/4W
R542	ERDS2TJ103	C 10K OHM J 1/4W	R753	ERDS2TJ563	C 56K OHM J 1/4W
R551	ERD25FJ184K	C 180K OHM J 1/4W	R754	ERDS2TJ473	C 47K OHM J 1/4W
R552	ERDS2TJ223	C 22K OHM J 1/4W	R755	ERDS2TJ473	C 47K OHM J 1/4W
R555	ERX2ANJ1R5	M 1.5 OHM J 2W	R756	ERDS2TJ103	C 10K OHM J 1/4W
R556	ERG1ANJ471	M 470 OHM J 1W	R757	ERDS2TJ102	C 1K OHM J 1/4W
R558	ERD25FJ682K	C 6.8K OHM J 1/4W	R760	ERD25FJ822K	C 8.2K OHM J 1/4W
R559	ERD25FJ222K	C 2.2K OHM J 1/4W	R762	ERDS2TJ103	C 10K OHM J 1/4W
R560	ERDS2TJ273	C 27K OHM J 1/4W	R763	ERDS2TJ223	C 22K OHM J 1/4W
R566	ERX1ANJP6R8	M 6.8 OHM J 1W	R764	ERDS1FJ101	C 100 OHM J 1/2W
R567	ERG1SJ102	M 1K OHM J 1W	R766	ERDS2TJ102	C 1K OHM J 1/4W
R570	ERDS2TJ122	C 1.2K OHM J 1/4W	R767	ERDS2TJ683	C 68K OHM J 1/4W
R576	ERDS2TJ332	C 3.3K OHM J 1/4W	R768	EVN38CA00B23	CONTROL B 2K OHM
R580	ERF5AJ561	W 560 OHM J 5W	R769	ERDS2TJ393	C 39K OHM J 1/4W
R581	ERF5AJ561	W 560 OHM J 5W	R770	ERDS2TJ392	C 3.9K OHM J 1/4W
R582	ERDS1FJ270	C 27 OHM J 1/2W	R771	ERDS2TJ123	C 12K OHM J 1/4W
R583	ERDS1FJ270	C 27 OHM J 1/2W	R772	ERDS2TJ182	C 1.8K OHM J 1/4W
R584	ERG5CJ182	M 1.8K OHM J 5W	R773	ERG1SJ391	M 390 OHM J 1W
R585	ERDS1FJ822	C 8.2K OHM J 1/2W	R774	ERDS1FJ563	C 56K OHM J 1/2W
R586	ERDS1FJ223	C 22K OHM J 1/2W	R775	ERDS2TJ273	C 27K OHM J 1/4W
R595	ERD25FJ335K	C 3.3M OHM J 1/4W	R776	ERDS1FJ821	C 820 OHM J 1/2W
R596	ERDS2TJ273	C 27K OHM J 1/4W	R777	ERG2SJ222	M 2.2K OHM J 2W
R600	ERD25FJ473K	C 47K OHM J 1/4W	R778	ERG2SJ222	M 2.2K OHM J 2W
R601	ERDS2TJ221	C 220 OHM J 1/4W	R779	ERDS1FJ122	C 1.2K OHM J 1/2W
R602	ERDS2TJ681	C 680 OHM J 1/4W	R780	ERDS1FJ682	C 6.8K OHM J 1/2W
R603	ERDS2TJ181	C 180 OHM J 1/4W	R782	ERDS2TJ682	C 6.8K OHM J 1/4W
R604	ERDS2TJ561	C 560 OHM J 1/4W	R783	ERDS2TJ562	C 5.6K OHM J 1/4W
R606	ERDS2TJ102	C 1K OHM J 1/4W	R784	ERDS2TJ153	C 15K OHM J 1/4W
R609	ERDS2TJ822	C 8.2K OHM J 1/4W	R786	ERDS1FJ561	C 560 OHM J 1/2W
R610	ERDS2TJ391	C 390 OHM J 1/4W	R800	ERF3AKR47	W 0.47 OHM K 3W
R611	ERDS2TJ391	C 390 OHM J 1/4W	⚠ R801	ERF7ZK4R7	W 4.7 OHM K 7W
R614	EVM4HGA00B33	CONTROL B 3K OHM	⚠ R803	ERG1SJ391	M 390 OHM J 1W
R615	ERD25FJ100K	C 10 OHM J 1/4W	R804	ERDS1TJ564	C 560K OHM J 1/2W
R616	ERDS2TJ224	C 220K OHM J 1/4W	⚠ R805	EROS2CKF2201	M 2.2K OHM F 1/4W
R617	ERDS2TJ561	C 560 OHM J 1/4W	⚠ R806	EVMK4GA00B52	CONTROL B 500 OHM
R618	ERDS2TJ102	C 1K OHM J 1/4W	⚠ R807	EROS2CKF1741	M 1.74K OHM F 1/4W
R619	EVM4HGA00B54	CONTROL B 50K OHM	⚠ R809	ERG3SJ330	M 33 OHM J 3W
R620	ERDS2TJ103	C 10K OHM J 1/4W	R810	ERG1ANJ683	M 68K OHM J 1W
R621	EVM4HGA00B52	CONTROL B 500 OHM	⚠ R811	ERF2AKR39	W 0.39 OHM K 2W
R622	ERDS2TJ681	C 680 OHM J 1/4W	⚠ R812	ERD75TAJ825	C 8.2M OHM J 3/4W
R625	ERDS2TJ221	C 220 OHM J 1/4W	R824	ERG3SJ151	M 150 OHM J 3W
R626	EVM4HGA00B14	CONTROL B 10K OHM	R833	ERQ12HKR22	F 0.22 OHM K 1/2W
R627	ERDS2TJ104	C 100K OHM J 1/4W	R834	ERG1SJ561	M 560 OHM J 1W
R628	ERDS2TJ392	C 3.9K OHM J 1/4W	R836	ERDS2TJ222	C 2.2K OHM J 1/4W
R633	ERD25FJ824K	C 820K OHM J 1/4W	R837	ERDS2TJ102	C 1K OHM J 1/4W
R634	ERDS2TJ471	C 470 OHM J 1/4W	R843	ERQ12HKR22	F 0.22 OHM K 1/2W
R635	ERDS2TJ682	C 6.8K OHM J 1/4W	R5001	ERDS2TJ471	C 470 OHM J 1/4W
R636	ERDS2TJ101	C 100 OHM J 1/4W	R5010	ERDS2TJ103	C 10K OHM J 1/4W
R637	ERDS2TJ471	C 470 OHM J 1/4W	R5010	MA4043M	DIODE.SI
R639	ERD25FJ471K	C 470 OHM J 1/4W	R5011	ERDS2TJ561	C 560 OHM J 1/4W
R640	ERDS2TJ102	C 1K OHM J 1/4W	R5012	ERDS2TJ123	C 12K OHM J 1/4W
R642	ERDS2TJ102	C 1K OHM J 1/4W	R5013	ERDS2TJ562	C 5.6K OHM J 1/4W
R643	ERDS2TJ102	C 1K OHM J 1/4W	R5014	ERDS2TJ561	C 560 OHM J 1/4W
R645	ERDS2TJ102	C 1K OHM J 1/4W	R5015	ERDS2TJ561	C 560 OHM J 1/4W
R646	ERDS2TJ822	C 8.2K OHM J 1/4W	R5016	ERDS2TJ101	C 100 OHM J 1/4W
R647	ERDS2TJ562	C 5.6K OHM J 1/4W	R5017	ERDS2TJ102	C 1K OHM J 1/4W
R649	ERDS2TJ391	C 390 OHM J 1/4W	R5018	ERDS2TJ561	C 560 OHM J 1/4W

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
R5019	ERDS2TJ471	C 470 OHM J 1/4W	R5163	ERDS2TJ684	C 680K OHM J 1/4W
R5020	ERDS2TJ822	C 8.2K OHM J 1/4W	R5164	ERDS2TJ824	C 820K OHM J 1/4W
R5021	ERDS2TJ563	C 56K OHM J 1/4W	R5165	ERDS2TJ105	C 1M OHM J 1/4W
R5022	ERDS2TJ222	C 2.2K OHM J 1/4W	R5166	ERDS2TJ824	C 820K OHM J 1/4W
R5023	ERDS2TJ221	C 220 OHM J 1/4W	R5167	ERDS2TC0	C 0 OHM 1/4W
R5024	ERDS2TJ121	C 120 OHM J 1/4W	R5167	ERDS2TJ123	C 12K OHM J 1/4W
R5026	ERDS2TJ561	C 560 OHM J 1/4W	R5167	ERDS2TJ153	C 15K OHM J 1/4W
R5043	ERDS2TJ221	C 220 OHM J 1/4W	R5171	ERD25FJ391K	C 390 OHM J 1/4W
R5044	ERDS2TJ472	C 4.7K OHM J 1/4W	R5172	ERDS2TJ331	C 330 OHM J 1/4W
R5045	ERDS2TJ333	C 33K OHM J 1/4W	R5173	ERDS2TJ472	C 4.7K OHM J 1/4W
R5046	ERDS2TJ333	C 33K OHM J 1/4W	R5174	ERDS2TJ272	C 2.7K OHM J 1/4W
R5049	ECKF1H152KB	C 1500PF K 50V	R5175	ERDS2TJ122	C 1.2K OHM J 1/4W
R5049	ERDS2TJ562	C 5.6K OHM J 1/4W	R5176	ERDS2TJ472	C 4.7K OHM J 1/4W
R5050	ERDS2TJ223	C 22K OHM J 1/4W	R5177	ERDS2TJ102	C 1K OHM J 1/4W
R5051	ERDS2TJ102	C 1K OHM J 1/4W	R5178	ERDS2TJ102	C 1K OHM J 1/4W
R5052	ERDS2TJ101	C 100 OHM J 1/4W	R5179	ERDS2TJ472	C 4.7K OHM J 1/4W
R5061	ERDS2TJ153	C 15K OHM J 1/4W	R5180	ERDS2TJ472	C 4.7K OHM J 1/4W
R5101	ERDS2TJ103	C 10K OHM J 1/4W	R5181	ERDS2TJ121	C 120 OHM J 1/4W
R5103	ERDS2TJ332	C 3.3K OHM J 1/4W	R5182	ERDS2TJ331	C 330 OHM J 1/4W
R5104	ERDS2TJ272	C 2.7K OHM J 1/4W	R5183	ERDS2TJ121	C 120 OHM J 1/4W
R5106	EVM4HGA00B54	CONTROL B 50K OHM	R5184	ERDS2TJ393	C 39K OHM J 1/4W
R5107	ECCF1H820JC	C 82PF J 50V	R5185	ERDS2TJ222	C 2.2K OHM J 1/4W
R5107	ERDS2TJ681	C 680 OHM J 1/4W	R5186	ERDS2TJ472	C 4.7K OHM J 1/4W
R5108	ERDS2TJ103	C 10K OHM J 1/4W	R5187	ERDS2TJ152	C 1.5K OHM J 1/4W
R5109	ERDS2TJ102	C 1K OHM J 1/4W	R5190	ERDS2TJ222	C 2.2K OHM J 1/4W
R5110	EROS2CKF3401	M 3.4K OHM F 1/4W	R5191	ERD25FJ182K	C 1.8K OHM J 1/4W
R5111	ECCF1H680JC	C 68PF J 50V	R5192	ERDS2TJ393	C 39K OHM J 1/4W
R5111	EROS2CKF6800	M 680 OHM F 1/4W	R5193	ERDS2TJ472	C 4.7K OHM J 1/4W
R5112	EROS2CKF1371	M 1.37K OHM F 1/4W	R5195	ERD25FJ100K	C 10 OHM J 1/4W
R5113	ECCF1H560JC	C 56PF J 50V	R5201	ERD25FJ750K	C 75 OHM J 1/4W
R5113	ERDS2TJ681	C 680 OHM J 1/4W	R5202	ERD25FJ750K	C 75 OHM J 1/4W
R5115	EVM4HGA00B33	CONTROL B 3K OHM	R5203	ERDS2TJ331	C 330 OHM J 1/4W
R5116	EVM4HGA00B33	CONTROL B 3K OHM	R5204	ERDS2TJ331	C 330 OHM J 1/4W
R5117	ERDS2TJ471	C 470 OHM J 1/4W	R5205	ERDS2TJ563	C 56K OHM J 1/4W
R5118	ERDS2TJ471	C 470 OHM J 1/4W	R5206	ERDS2TJ563	C 56K OHM J 1/4W
R5119	ERDS2TJ471	C 470 OHM J 1/4W	R5207	ERDS2TJ563	C 56K OHM J 1/4W
R5120	ERD25FJ472K	C 4.7K OHM J 1/4W	R5208	ERDS2TJ563	C 56K OHM J 1/4W
R5122	ERDS2TJ331	C 330 OHM J 1/4W	R5209	ERDS2TJ821	C 820 OHM J 1/4W
R5124	ERDS2TJ101	C 100 OHM J 1/4W	R5210	ERDS2TJ821	C 820 OHM J 1/4W
R5125	ERDS2TJ122	C 1.2K OHM J 1/4W	R5211	ERDS2TJ223	C 22K OHM J 1/4W
R5126	ERDS2TJ101	C 100 OHM J 1/4W	R5212	ERDS2TJ223	C 22K OHM J 1/4W
R5127	ERDS2TJ122	C 1.2K OHM J 1/4W	R5213	ERDS2TJ561	C 560 OHM J 1/4W
R5128	ERDS2TJ101	C 100 OHM J 1/4W	R5214	ERDS2TJ151	C 150 OHM J 1/4W
R5129	ERDS2TJ101	C 100 OHM J 1/4W	R5215	ERDS2TJ102	C 1K OHM J 1/4W
R5130	ERDS2TJ101	C 100 OHM J 1/4W	R5216	EVM4HGA00B52	CONTROL B 500 OHM
R5132	ERDS2TJ472	C 4.7K OHM J 1/4W	R5217	ERDS2TJ471	C 470 OHM J 1/4W
R5133	ERDS2TJ471	C 470 OHM J 1/4W	R5253	ERDS2TJ102	C 1K OHM J 1/4W
R5134	ERDS2TJ103	C 10K OHM J 1/4W	R5254	ERDS2TJ182	C 1.8K OHM J 1/4W
R5136	ERDS2TJ471	C 470 OHM J 1/4W	R5255	ERDS2TJ223	C 22K OHM J 1/4W
R5137	ERD25FJ471K	C 470 OHM J 1/4W	R5256	EVM4HGA00B23	CONTROL B 2K OHM
R5138	ERDS2TJ471	C 470 OHM J 1/4W	R5257	ERDS2TJ331	C 330 OHM J 1/4W
R5139	ERDS1FJ472	C 4.7K OHM J 1/2W	R5258	ERDS2TJ332	C 3.3K OHM J 1/4W
R5140	ERDS2TJ472	C 4.7K OHM J 1/4W	R5259	ERDS2TJ152	C 1.5K OHM J 1/4W
R5141	ERDS2TJ472	C 4.7K OHM J 1/4W	R5262	ERDS2TJ102	C 1K OHM J 1/4W
R5142	EVM4HGA00B52	CONTROL B 500 OHM	R5263	ERDS2TJ182	C 1.8K OHM J 1/4W
R5143	EVM4HGA00B52	CONTROL B 500 OHM	R5264	ERDS2TJ223	C 22K OHM J 1/4W
R5144	EVM4HGA00B52	CONTROL B 500 OHM	R5265	EVM4HGA00B23	CONTROL B 2K OHM
R5148	ERDS2TJ222	C 2.2K OHM J 1/4W	R5266	ERDS2TJ331	C 330 OHM J 1/4W
R5151	ERDS2TJ223	C 22K OHM J 1/4W	R5267	ERDS2TJ332	C 3.3K OHM J 1/4W
R5152	ERDS2TJ472	C 4.7K OHM J 1/4W	R5268	ERDS2TJ152	C 1.5K OHM J 1/4W
R5161	ERDS2TJ564	C 560K OHM J 1/4W	R5269	ERDS2TJ223	C 22K OHM J 1/4W
R5162	ERDS2TJ684	C 680K OHM J 1/4W	R5270	ERDS2TJ223	C 22K OHM J 1/4W

Ref.No.	Part No.	Description
R5271	ERDS2TJ562	C 5.6K OHM J 1/4W
R5272	ERDS2TJ223	C 22K OHM J 1/4W
R5273	ERDS2TJ562	C 5.6K OHM J 1/4W
R5274	ERDS2TJ223	C 22K OHM J 1/4W
R5277	ERDS2TJ681	C 680 OHM J 1/4W
R5278	ERDS2TJ681	C 680 OHM J 1/4W
R5279	ERDS2TJ681	C 680 OHM J 1/4W
R5280	ERDS2TJ681	C 680 OHM J 1/4W
R5281	ERDS2TJ221	C 220 OHM J 1/4W
R5282	EVM4HGA00B14	CONTROL B 10K OHM
R5283	ERDS2TJ103	C 10K OHM J 1/4W
R5284	ERDS2TJ221	C 220 OHM J 1/4W
R5285	EVM4HGA00B14	CONTROL B 10K OHM
R5286	ERDS2TJ103	C 10K OHM J 1/4W
R5287	ERDS2TJ222	C 2.2K OHM J 1/4W
R5288	ERDS2TJ392	C 3.9K OHM J 1/4W
R5289	ERDS2TJ272	C 2.7K OHM J 1/4W
R5290	ERDS2TJ472	C 4.7K OHM J 1/4W
R5291	ERDS2TJ472	C 4.7K OHM J 1/4W
R5292	ERDS2TJ122	C 1.2K OHM J 1/4W
R5295	ERDS2TJ223	C 22K OHM J 1/4W
R5296	ERDS2TJ223	C 22K OHM J 1/4W
R5309	ERDS2TJ331	C 330 OHM J 1/4W
R5310	ERDS2TJ393	C 39K OHM J 1/4W
R5311	ERDS2TJ183	C 18K OHM J 1/4W
R5312	ERDS2TJ122	C 1.2K OHM J 1/4W
R5313	ERDS2TJ222	C 2.2K OHM J 1/4W
R5314	ERD25FJ561K	C 560 OHM J 1/4W
R5315	ERD25FJ100K	C 10 OHM J 1/4W
R5317	ERDS2TJ331	C 330 OHM J 1/4W
R5319	ERDS2TJ331	C 330 OHM J 1/4W
R5320	ERDS2TJ750	C 75 OHM J 1/4W
R5321	ERDS2TJ103	C 10K OHM J 1/4W
R5327	ERDS2TJ103	C 10K OHM J 1/4W
R5328	ERDS2TJ331	C 330 OHM J 1/4W
R5329	ERD25FJ331K	C 330 OHM J 1/4W
R5330	ERDS2TJ472	C 4.7K OHM J 1/4W
R5331	ERDS2TJ223	C 22K OHM J 1/4W
R5401	ERDS2TJ101	C 100 OHM J 1/4W
R5402	ERDS2TJ222	C 2.2K OHM J 1/4W
R5403	ERDS2TJ222	C 2.2K OHM J 1/4W
R5404	ERDS2TJ391	C 390 OHM J 1/4W
R5405	ERDS2TJ101	C 100 OHM J 1/4W
R5406	ERDS2TJ124	C 120K OHM J 1/4W
R5407	ERDS2TJ152	C 1.5K OHM J 1/4W
R5409	ERDS2TJ152	C 1.5K OHM J 1/4W
R5410	ERDS2TJ102	C 1K OHM J 1/4W
R5411	ERDS2TJ392	C 3.9K OHM J 1/4W
R5412	ERDS2TJ221	C 220 OHM J 1/4W
R5415	ERDS2TJ222	C 2.2K OHM J 1/4W
R5416	ERDS2TJ103	C 10K OHM J 1/4W
R5417	ERDS2TJ272	C 2.7K OHM J 1/4W
R5418	ERDS2TJ392	C 3.9K OHM J 1/4W
R5419	ERDS2TJ392	C 3.9K OHM J 1/4W
R5420	ERDS2TJ821	C 820 OHM J 1/4W
R5421	ERDS2TJ102	C 1K OHM J 1/4W
R5422	ERDS2TJ102	C 1K OHM J 1/4W
R5423	ERD25FJ821K	C 820 OHM J 1/4W
R5424	ERDS2TJ823	C 82K OHM J 1/4W
R5425	ERDS2TJ471	C 470 OHM J 1/4W
R5426	ERDS2TJ823	C 82K OHM J 1/4W
R5427	ERDS2TJ101	C 100 OHM J 1/4W
R5428	ERDS2TJ183	C 18K OHM J 1/4W
R5429	EVM4HGA00B53	CONTROL B 5K OHM
R5430	ERDS2TJ103	C 10K OHM J 1/4W
R5431	ERDS2TJ101	C 100 OHM J 1/4W
R5432	ERDS2TJ391	C 390 OHM J 1/4W
R5433	ERDS2TJ391	C 390 OHM J 1/4W
R5434	ERDS2TJ472	C 4.7K OHM J 1/4W
R5435	ERDS2TJ474	C 470K OHM J 1/4W
R5436	ERDS2TJ472	C 4.7K OHM J 1/4W
R5437	ERDS2TJ223	C 22K OHM J 1/4W
R5438	ERDS2TJ472	C 4.7K OHM J 1/4W
R5439	ERDS2TJ473	C 47K OHM J 1/4W
R5440	EVM4HGA00B54	CONTROL B 50K OHM
R5441	ERDS2TJ683	C 68K OHM J 1/4W
R5442	ERDS2TJ472	C 4.7K OHM J 1/4W
R5443	ERDS2TJ471	C 470 OHM J 1/4W
R5444	ERDS2TJ102	C 1K OHM J 1/4W
R5445	ERDS2TJ102	C 1K OHM J 1/4W
R5446	ERDS2TJ823	C 82K OHM J 1/4W
R5447	ERDS2TJ823	C 82K OHM J 1/4W
R5448	ERDS2TJ471	C 470 OHM J 1/4W
R5449	ERDS2TJ103	C 10K OHM J 1/4W
R5450	ERDS2TJ103	C 10K OHM J 1/4W
R5451	ERDS2TJ221	C 220 OHM J 1/4W
R5452	ERDS2TJ221	C 220 OHM J 1/4W
R5453	ERDS2TJ102	C 1K OHM J 1/4W
R5454	ERDS2TJ562	C 5.6K OHM J 1/4W
R5455	ERDS2TJ472	C 4.7K OHM J 1/4W
R5456	ERDS2TJ103	C 10K OHM J 1/4W
R5458	ERDS2TJ223	C 22K OHM J 1/4W
R5459	ERDS2TJ223	C 22K OHM J 1/4W
R5460	ERDS2TJ182	C 1.8K OHM J 1/4W
R5461	ERDS2TJ471	C 470 OHM J 1/4W
R5470	ERDS2TJ392	C 3.9K OHM J 1/4W
R5472	ERDS2TJ822	C 8.2K OHM J 1/4W
R5473	ERDS2TJ822	C 8.2K OHM J 1/4W
R5474	ERDS2TJ122	C 1.2K OHM J 1/4W
R5475	ERDS2TJ822	C 8.2K OHM J 1/4W
R5476	ERD25FJ561K	C 560 OHM J 1/4W
R5477	ERDS2TJ682	C 6.8K OHM J 1/4W
R5478	ERDS2TJ822	C 8.2K OHM J 1/4W
R5479	ERDS2TJ392	C 3.9K OHM J 1/4W
R5480	ERDS2TJ562	C 5.6K OHM J 1/4W
R5501	ERDS2TJ152	C 1.5K OHM J 1/4W
R5504	ERD25FJ153K	C 15K OHM J 1/4W
R5505	ERDS2TJ153	C 15K OHM J 1/4W
R5506	ERDS2TJ153	C 15K OHM J 1/4W
R5507	EROS2CKF2200	M 220 OHM F 1/4W
R5508	EROS2CKF2200	M 220 OHM F 1/4W
R5509	EROS2CKF2200	M 220 OHM F 1/4W
R5513	ERDS2TJ101	C 100 OHM J 1/4W
R5514	ERDS2TJ101	C 100 OHM J 1/4W
R5523	ERDS1TJ222	C 2.2K OHM J 1/2W
R5532	ERDS2TJ221	C 220 OHM J 1/4W
R5533	ERDS2TJ103	C 10K OHM J 1/4W
R5534	ERDS2TJ222	C 2.2K OHM J 1/4W
R5535	ERDS2TJ333	C 33K OHM J 1/4W
R5536	ERDS2TJ222	C 2.2K OHM J 1/4W
R5537	ERDS2TJ332	C 3.3K OHM J 1/4W
R5538	ERDS2TJ222	C 2.2K OHM J 1/4W
R5539	ERDS2TJ333	C 33K OHM J 1/4W

Ref.No.	Part No.	Description
R5540	ERDS2TJ222	C 2.2K OHM J 1/4W
R5541	ERDS2TJ101	C 100 OHM J 1/4W
R5542	EVM4HGA00B23	CONTROL B 2K OHM
R5543	ERD25FJ564K	C 560K OHM J 1/4W
R5544	EVM4HGA00B23	CONTROL B 2K OHM
R5545	ERDS2TJ102	C 1K OHM J 1/4W
R5546	EVM4HGA00B23	CONTROL B 2K OHM
R5547	EROS2CKF2402	M 24K OHM F 1/4W
R5548	ERO25CKF2402	M 24K OHM F 1/4W
R5549	EROS2CKF2402	M 24K OHM F 1/4W
R5550	ERDS2TJ273	C 27K OHM J 1/4W
R5571	ERDS1TJ101	C 100 OHM J 1/2W
R5572	ERDS2TJ101	C 100 OHM J 1/4W
R5574	ERDS2TJ101	C 100 OHM J 1/4W
R5576	ERDS2TJ101	C 100 OHM J 1/4W
R5577	EVM4HGA00B14	CONTROL B 10K OHM
R5578	ERD25FJ472K	C 4.7K OHM J 1/4W
R5579	EVM4HGA00B14	CONTROL B 10K OHM
R5580	EROS2CKF2052	M 20.5K OHM F 1/4W
R5581	EROS2CKF2052	M 20.5K OHM F 1/4W
R5582	EROS2CKF2052	M 20.5K OHM F 1/4W
R5583	EROS2CKF2200	M 220 OHM F 1/4W
R5584	EROS2CKF2200	M 220 OHM F 1/4W
R5585	EROS2CKF2200	M 220 OHM F 1/4W
R5586	EROS2CKF2200	M 220 OHM F 1/4W
R5587	EROS2CKF2200	M 220 OHM F 1/4W
R5588	EROS2CKF2200	M 220 OHM F 1/4W
R5589	EROS2CKF1001	M 1K OHM F 1/4W
R5590	EROS2CKF1001	M 1K OHM F 1/4W
R5591	ERO25CKF1001	M 1K OHM F 1/4W
R5592	ERDS2TJ101	C 100 OHM J 1/4W
R5593	ERDS2TJ181	C 180 OHM J 1/4W
R5594	ERDS2TJ101	C 100 OHM J 1/4W
R5596	ERDS2TJ331	C 330 OHM J 1/4W
R5598	ERDS2TJ272	C 2.7K OHM J 1/4W
R5599	ERDS2TJ681	C 680 OHM J 1/4W
R5601	ERDS2TJ331	C 330 OHM J 1/4W
R5602	ERDS2TJ331	C 330 OHM J 1/4W
R5603	ERD25FJ332K	C 3.3K OHM J 1/4W
R5604	EROS2CKF75R0	M 75 OHM F 1/4W
R5605	EROS2CKF75R0	M 75 OHM F 1/4W
R5606	ERO50CKF75R0	M 75 OHM F 1/2W
R5607	EROS2CKF5602	M 56K OHM F 1/4W
R5608	EROS2CKF5602	M 56K OHM F 1/4W
R5609	ERDS2TJ563	C 56K OHM J 1/4W
R5610	EROS2CKF5602	M 56K OHM F 1/4W
R5611	EROS2CKF5602	M 56K OHM F 1/4W
R5612	ERDS2TJ563	C 56K OHM J 1/4W
R5613	ERDS2TJ103	C 10K OHM J 1/4W
R5614	ERDS2TJ103	C 10K OHM J 1/4W
R5615	ERDS2TJ821	C 820 OHM J 1/4W
R5623	EVMQHGA01B24	CONTROL B 20K OHM
R5626	ERDS1FJ471	C 470 OHM J 1/2W
R5627	EVMQHGA01B13	CONTROL B 1K OHM
R5628	ERDS1TJ821	C 820 OHM J 1/2W
R5631	EVM4HGA00B23	CONTROL B 2K OHM
R5632	ERDS2TJ822	C 8.2K OHM J 1/4W
R5633	EVMQHGA01B14	CONTROL B 10K OHM
R5634	ERDS2TJ472	C 4.7K OHM J 1/4W
R5635	ERD25FJ271K	C 270 OHM J 1/4W
R5636	EVMQHGA01B54	CONTROL B 50K OHM
R5637	EVMQHGA01B34	CONTROL B 30K OHM
R5638	EVMQHGA01B24	CONTROL B 20K OHM
R5639	EVMQHGA01B34	CONTROL B 30K OHM
R5640	ERDS2TJ683	C 68K OHM J 1/4W
R5641	ERDS2TJ473	C 47K OHM J 1/4W
R5650	ERD25FJ750K	C 75 OHM J 1/4W
R5651	EROS2CKF75R0	M 75 OHM F 1/4W
R5652	EROS2CKF75R0	M 75 OHM F 1/4W
R5653	EROS2CKF75R0	M 75 OHM F 1/4W
R5655	ERDS2TJ331	C 330 OHM J 1/4W
R5656	ERDS2TJ331	C 330 OHM J 1/4W
R5657	ERDS2TJ331	C 330 OHM J 1/4W
R5659	ERDS2TJ563	C 56K OHM J 1/4W
R5660	ERDS2TJ563	C 56K OHM J 1/4W
R5661	ERDS2TJ563	C 56K OHM J 1/4W
R5663	ERDS2TJ563	C 56K OHM J 1/4W
R5664	ERDS2TJ563	C 56K OHM J 1/4W
R5665	ERDS2TJ563	C 56K OHM J 1/4W
R5667	ERDS2TJ821	C 820 OHM J 1/4W
R5668	ERDS2TJ821	C 820 OHM J 1/4W
R5669	ERDS2TJ821	C 820 OHM J 1/4W
R5672	ERDS2TJ103	C 10K OHM J 1/4W
R5673	ERDS2TJ563	C 56K OHM J 1/4W
R5674	ERDS2TJ563	C 56K OHM J 1/4W
R5675	ERDS2TJ563	C 56K OHM J 1/4W
R5676	ERDS2TJ563	C 56K OHM J 1/4W
R5677	ERDS2TJ103	C 10K OHM J 1/4W
R5678	ERDS2TJ103	C 10K OHM J 1/4W
R5679	ERDS2TJ103	C 10K OHM J 1/4W
R5705	ERDS2TJ222	C 2.2K OHM J 1/4W
R5706	ERDS2TJ561	C 560 OHM J 1/4W
R5708	ERD25FJ100K	C 10 OHM J 1/4W
R5709	ERDS2TJ102	C 1K OHM J 1/4W
R5710	ERDS2TJ223	C 22K OHM J 1/4W
R5711	ERDS2TJ223	C 22K OHM J 1/4W
R5712	ERDS2TJ223	C 22K OHM J 1/4W
R5713	ERDS2TJ223	C 22K OHM J 1/4W
R5714	ERDS2TJ472	C 4.7K OHM J 1/4W
R5715	ERDS2TJ472	C 4.7K OHM J 1/4W
R5716	ERDS2TJ223	C 22K OHM J 1/4W
R5717	ERDS2TJ223	C 22K OHM J 1/4W
R5718	ERDS2TJ223	C 22K OHM J 1/4W
R5719	ERDS2TJ223	C 22K OHM J 1/4W
R5720	ERDS2TJ682	C 6.8K OHM J 1/4W
R5721	ERD25FJ103K	C 10K OHM J 1/4W
R5722	ERD25FJ331K	C 330 OHM J 1/4W
R5801	ERD25FJ103K	C 10K OHM J 1/4W
R5802	EVMQ1GA01B15	CONTROL B 100K OHM
R5803	ERDS2TJ102	C 1K OHM J 1/4W
R5804	TAV12K11215	CONTROL 2.1M OHM
R5805	ERDS2TJ102	C 1K OHM J 1/4W
R5811	ERD25FJ563K	C 56K OHM J 1/4W
R5812	EVMQ1GA01B14	CONTROL B 10K OHM
R5813	ERD25FJ563K	C 56K OHM J 1/4W
R5814	ERDS2TJ472	C 4.7K OHM J 1/4W
R5814	TAV12K11214	CONTROL 210K OHM
R5815	ERDS2TJ123	C 12K OHM J 1/4W
R5816	ERDS2TJ102	C 1K OHM J 1/4W
R5817	EVMQ1GA01B53	CONTROL B 5K OHM
R5818	ERDS2TJ392	C 3.9K OHM J 1/4W
R5819	TAV12K11253	CONTROL 25K OHM

Ref.No.	Part No.	Description
R5820	ERDS2TJ392	C 3.9K OHM J 1/4W
R5822	EVMQ1GA01B23	CONTROL B 2K OHM
R5823	ERD25FJ392K	C 3.9K OHM J 1/4W
R5824	TAV12K11223	CONTROL 22K OHM
R5825	ERDS2TJ392	C 3.9K OHM J 1/4W
R5827	EVMQ1GA01B13	CONTROL B 1K OHM
R5828	ERD25FJ181K	C 180 OHM J 1/4W
R5829	EVMQ1GA01B53	CONTROL B 5K OHM
R5832	ERD25FJ181K	C 180 OHM J 1/4W
R5833	EVMQ1GA01B53	CONTROL B 5K OHM
R5835	EVMQ1GA01B13	CONTROL B 1K OHM
R5836	ERD25FJ181K	C 180 OHM J 1/4W
R5837	EVMQ1GA01B53	CONTROL B 5K OHM
R5838	ERDS1FJ471	C 470 OHM J 1/2W
R5839	ERDS1FJ471	C 470 OHM J 1/2W
R5840	ERDS2TJ332	C 3.3K OHM J 1/4W
R5841	ERDS2TJ331	C 330 OHM J 1/4W
R5842	ERDS2TJ223	C 22K OHM J 1/4W
R5843	ERDS2TJ332	C 3.3K OHM J 1/4W
R5844	ERDS1FJ221	C 220 OHM J 1/2W
R5845	ERDS2TJ123	C 12K OHM J 1/4W
R5846	ERDS1FJ561	C 560 OHM J 1/2W
R5847	ERG1SJ221	M 220 OHM J 1W
R5848	ERDS2TJ103	C 10K OHM J 1/4W
R5849	ERD25FJ103K	C 10K OHM J 1/4W
R5852	ERD25FJ152K	C 1.5K OHM J 1/4W
R5853	ERD25FJ152K	C 1.5K OHM J 1/4W
R5854	ERD25FJ152K	C 1.5K OHM J 1/4W
R5857	ERDS2TJ221	C 220 OHM J 1/4W
R5858	ERD25FJ331K	C 330 OHM J 1/4W
R5859	ERDS2TJ682	C 6.8K OHM J 1/4W
R5860	ERTD3ZHL402S	THERMISTOR
R5861	ERD25FJ101K	C 100 OHM J 1/4W
R5864	EVM4HGA00B33	CONTROL B 3K OHM
R5865	ERDS2TJ332	C 3.3K OHM J 1/4W
R5940	ERDS2TJ471	C 470 OHM J 1/4W
R5950	ERDS2TJ472	C 4.7K OHM J 1/4W
R5951	ERDS2TJ472	C 4.7K OHM J 1/4W
R5952	ERDS2TJ392	C 3.9K OHM J 1/4W
R5953	ERDS2TJ102	C 1K OHM J 1/4W
R5954	ERDS2TJ472	C 4.7K OHM J 1/4W
R5955	ERDS2TJ393	C 39K OHM J 1/4W
R5956	ERDS2TJ473	C 47K OHM J 1/4W
R5957	ERDS2TJ472	C 4.7K OHM J 1/4W
R5958	ERDS2TJ822	C 8.2K OHM J 1/4W
R5961	ERDS2TJ122	C 1.2K OHM J 1/4W
R5977	ERDS2TJ223	C 22K OHM J 1/4W
R5978	ERDS2TJ273	C 27K OHM J 1/4W
R5979	ERDS2TJ563	C 56K OHM J 1/4W
R5980	ERDS2TJ103	C 10K OHM J 1/4W
R5981	ERDS2TJ472	C 4.7K OHM J 1/4W
R5982	ERD25FJ102K	C 1K OHM J 1/4W
R5983	ERDS2TJ223	C 22K OHM J 1/4W
R5984	ERDS2TJ223	C 22K OHM J 1/4W
R5985	ERDS2TJ223	C 22K OHM J 1/4W
R5986	ERDS2TJ223	C 22K OHM J 1/4W
R5987	ERD25FJ223K	C 22K OHM J 1/4W
R5988	ERDS2TJ103	C 10K OHM J 1/4W
R5989	ERDS2TJ473	C 47K OHM J 1/4W
R5990	ERDS2TJ103	C 10K OHM J 1/4W
R5991	EVM4HGA00B54	CONTROL B 50K OHM
R5992	ERDS2TJ393	C 39K OHM J 1/4W

Ref.No.	Part No.	Description
R5993	ERDS2TJ183	C 18K OHM J 1/4W
R5994	ERDS2TJ223	C 22K OHM J 1/4W
R5995	ERDS2TJ223	C 22K OHM J 1/4W
R5996	ERD25FJ471K	C 470 OHM J 1/4W
R5998	ERDS2TJ221	C 220 OHM J 1/4W
R5999	ERDS2TJ472	C 4.7K OHM J 1/4W

OTHERS

K106	TES4539	SPRING(TR)
K107	TES6162	SPRING
K108	TES6583	SPRING(IC) SMALL
K110	TJS118150	8P SOCKET(VTR)
K109	TJS118941	BNC CONNECTOR(W/SWITCH)
K111	TJS35030	CRT SOCKET
K112	TKK870503	VOLUME HOLDER
K113	TKK878503-5	POWER IN TERMINAL BOARD
K114	TMK87513-2	CONTROL P.W.B. BARRIER
K115	TMM15202	CRT SOCKET COVER
K118	TMM6428-1	CLAMPER
K119	TMM76403-1	CLAMPER
Y44	TMM81488	CLAMPER
K120	TMX6424	L.CLAMPER
K121	TUW87502	TERMINAL BRACKET
Y22	TUX80971	CORD BRACKET
Y52	TUX87109	CHASSIS BRACKET
K122	TUX87403	P.W. BOARD BRACKET
K123	TUX87417	VOLUME BRACKET
K124	TUX87418	P.W. BOARD BRACKET (C)
K125	TUX87419-1	SWITCH BRACKET
Y45	TXAJTT2P343	2P CONNECTOR ASSY(A)
Y46	TXAJTT3P1165	3P CONNECTOR ASSY(A31)
Y47	TXAJTT3P1415	3P CONNECTOR ASSY
Y48	TXAJTV2P477	2P CONNECTOR ASSY
Y49	TXAJTV2P554	2P CONNECTOR ASSY(B20)
Y50	TXAJTV3P1168	3P CONNECTOR ASSY(Q2)
Y51	TXAJTV3P1459	3P CONNECTOR ASSY(W7)
K126	XNG3BS	NUT
K127	XSN3+10S	SCREW
K129	XTN26+10B	SCREW
K130	XTV3+10A	SCREW
K59	XTV3+8A	SCREW
K131	XTWT983G	SCREW
K132	XWG3	WASHER
K134	XYN3+F12	SCREW
A1	TJS118590	2P CONNECTOR
A2	TJS118620	5P CONNECTOR
A3	TJS118590	2P CONNECTOR
A4	TJS118620	5P CONNECTOR
A5	TJS118600	3P CONNECTOR
A6	TJS118600	3P CONNECTOR
A7	TJS118600	3P CONNECTOR
A17	TJS118590	2P CONNECTOR
A18	TJS118590	2P CONNECTOR
A33	TJS118600	3P CONNECTOR
A34	TJS118590	2P CONNECTOR
A35	TXAJTT1P159	1P CONNECTOR ASSY(D1)
A36	TEL302-9	TERMINAL
A37	TXAJTE2P557	2P CONNECTOR ASSY(N2)
A10-1	TEL302-9	TERMINAL
A10-2	TEL302-9	TERMINAL
A10-3	TEL302-9	TERMINAL
A15-1	TEL302-9	TERMINAL

Ref.No.	Part No.	Description
A15-2	TEL302-9	TERMINAL
A15-3	TEL302-9	TERMINAL
A15-4	TEL302-9	TERMINAL
A31-1	TEL302-9	TERMINAL
A31-2	TEL302-9	TERMINAL
B1	TJS118630	6P CONNECTOR
B2	TEL302-9	TERMINAL
B5	TJS118620	5P CONNECTOR
B6	TJS118590	2P CONNECTOR
B7	TJS118620	5P CONNECTOR
B8	TJS118630	6P CONNECTOR
B9	TJS118620	5P CONNECTOR
B10	TJS118620	5P CONNECTOR
B11	TJS118670	10P CONNECTOR
B13	TXAJTV6P497	6P CONNECTOR ASSY(A2)
B14	TJS118650	8P CONNECTOR
B15	TJS118600	3P CONNECTOR
B16	TJS118610	4P CONNECTOR
B17	TXAJTV2P553	2P CONNECTOR ASSY(A7)
B18	TXAJTV4P697	4P CONNECTOR ASSY(A1)
B19	TJS118600	3P CONNECTOR
B20	TJS118590	2P CONNECTOR
B22	TJS118590	2P CONNECTOR
B37	TJS118600	3P CONNECTOR
B38	TJS118600	3P CONNECTOR
B39	TJS118600	3P CONNECTOR
B40	TJS118600	3P CONNECTOR
B42	TJS118590	2P CONNECTOR
B43	TJS118590	2P CONNECTOR
B50	TXAJTE2P520A	2P CONNECTOR ASSY(N2)
B31-1	TEL302-9	TERMINAL
B31-2	TEL302-9	TERMINAL
B31-3	TEL302-9	TERMINAL
B32-1	TEL302-9	TERMINAL
B32-2	TEL302-9	TERMINAL
B32-3	TEL302-9	TERMINAL
B33-1	TEL302-9	TERMINAL
B33-2	TEL302-9	TERMINAL
B33-3	TEL302-9	TERMINAL
C1	TXAJTV10P042	10P CONNECTOR ASSY(B11)
C2	TXAJTV2P555	2P CONNECTOR ASSY(B42)
C3	TXAJTV3P1458	3P CONNECTOR ASSY(A33)
C4	TXAJTV5P395	5P CONNECTOR ASSY(B7)
C5	TXAJTV2P556	2P CONNECTOR ASSY(W11)
C6	TXAJTV4P698	4P CONNECTOR ASSY
C7	TXAJTV5P394	5P CONNECTOR ASSY(B5)
C8	TXAJTV6P498	6P CONNECTOR ASSY(W3)
C9	TXAJTV3P1345	3P CONNECTOR ASSY(M1)
CN1	TXAJTV7P057	7P CONNECTOR ASSY
CN2	TXAJTV9P072	9P CONNECTOR ASSY
CN3	TXAJTV8P128	8P CONNECTOR ASSY
CN4	TXAJTV3P1217	3P CONNECTOR ASSY
D1	TEL302-9	TERMINAL
D7	TXAJTV8P062	8P CONNECTOR ASSY(M1)
D8	TXAJTV7P046	7P CONNECTOR ASSY(M2)
DEG-1	TEL302-9	TERMINAL
DEG-2	TEL302-9	TERMINAL
G4	TJS1A8140	8P CONNECTOR
L1	TXAJTV3P1346	3P CONNECTOR ASSY(B38)
L2	TXAJTV3P1212	3P CONNECTOR ASSY(B37)
L3	TXAJTV3P1213	3P CONNECTOR ASSY(B39)
L4	TXAJTV3P1160	3P CONNECTOR ASSY(A6)

Ref.No.	Part No.	Description
L5	TXAJTV3P1229	3P CONNECTOR ASSY(A36)
L7	TEL302-9	TERMINAL
L11	TXAJTT1P195	1P CONNECTOR ASSY(B2)
L12	TXAJTV3P1347	3P CONNECTOR ASSY(B40)
M1	TJS118650	8P CONNECTOR
M2	TJS118640	7P CONNECTOR
Q1	TJS118610	4P CONNECTOR
Q2	TJS118600	3P CONNECTOR
R1	TXAJTV8P109A	8P CONNECTOR ASSY(G4)
R2	TXAJTV6P467	6P CONNECTOR ASSY(W4)
R556-1	TEL312	TERMINAL
R556-2	TEL312	TERMINAL
R580L	TEL312	TERMINAL
R580R	TEL312	TERMINAL
R581L	TEL312	TERMINAL
R581R	TEL312	TERMINAL
R584L	TEL312	TERMINAL
R584R	TEL312	TERMINAL
R800L	TEL312	TERMINAL
R800R	TEL312	TERMINAL
RB10	TXAJTV6P462	6P CONNECTOR ASSY(B10)
RB14	TXAJTV8P103	8P CONNECTOR ASSY
RN1	TXAJTV8P105	8P CONNECTOR ASSY(W1)
RN2	TXAJTV8P104	8P CONNECTOR ASSY
W1	TJS118650	8P CONNECTOR
W2	TXAJTV6P401	6P CONNECTOR ASSY(B1)
W3	TJS118630	6P CONNECTOR
W4	TJS118600	3P CONNECTOR
W5	TXAJTV2P559	2P CONNECTOR ASSY(A18)
W6	TXAJTV2P558	2P CONNECTOR ASSY(A34)
W7	TJS118600	3P CONNECTOR
W9	TXAJTV3P1167	3P CONNECTOR ASSY(B19)
W10	TXAJTV3P1460	3P CONNECTOR ASSY(A3)
W11	TJS118590	2P CONNECTOR
JX5201	TJS8A9040	4P CONNECTOR
JX5202	TJS8A9040	4P CONNECTOR
S401	EVQR1AL13	SWITCH
SW5201	TSE80374-1	SWITCH
SW5601	TSE80391	SWITCH
SW5602	TSE80391	SWITCH
SW5801	TSE80471	SWITCH
SW5806	TSE80478	SWITCH
SW5807	TSE80732	SWITCH
SW5808	TSE80732	SWITCH
SW5809	TSE80479	SWITCH
SW5810	TSE80734	SWITCH
SW5814	TSE80732	SWITCH
SW5815	TSE80733	SWITCH
X601	TSS116M1	CRYSTAL OSCILLATOR